

Review of the Physical Condition of Bukittinggi City Wrestling Athletes

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Abstract

Studi Purpose This study aims to determine the level of physical condition of male wrestling athletes in the city of Bukittinggi. **Method** This research uses a type of descriptive research which consists of analyzing descriptions of symptoms or situations of certain objects. The population of this study was all wrestling athletes in the city of Bukittinggi, totaling 10 athletes with a sample size of 10 athletes determined using total sampling techniques. **Results** of data analysis of the frequency distribution of the physical condition of male wrestling athletes in the city of Bukittinggi, namely: 1) the level of arm muscle strength of male wrestling athletes in the city of Bukittinggi using pull ups is in the good category with an average value of 11. 2) the level of reaction speed of male wrestling athletes in the city Bukittinggi using the Whole Body Reaction tool is included in the medium category with an average value of 0.802. 3) the level of flexibility of male wrestling athletes from the city of Bukittinggi using Bridge-Up is included in the medium category with an average score of 40.75. 4) the level of aerobic endurance of male wrestling athletes in the city of Bukittinggi bleep test is included in the good category with an average score of 43.24.

Keywords: Physical Condition; Athlete; Wrestling

1. Introduction

Sport is a physical activity that is carried out with the aim of maintaining physical freshness in excellent condition. The development of sports has been increasing rapidly over time, one of which is in the field of martial arts. Martial arts were previously also called martial arts. Martial arts consist of several types, such as: 1) sharply armed combat art, 2) unsharply armed combat art, 3) bare-handed combat art. The art of hand-to-hand combat is divided into several types, namely 1) Aikido, 2) Capoeira, 3) Hapkido, 4) Hikmatul Iman Indonesia, 5) Jeet Kune Do, 6) Kurash, 7) Sambo, 8) Judo, 9) Karate, 10) Kempo, 11) Kun Fu, 12) Wrestling.

Wrestling is a martial art sport carried out by two people with the aim of slamming each other, controlling and locking the opponent in a supine position using certain techniques so that it does not harm the opponent (Rubianto, 2004:1). Wrestling in Indonesia is under the auspices of the Indonesian Wrestling Association or abbreviated as PGSI. The development of wrestling in Bukittinggi City was pioneered by the Youth and Sports Education Office in 2007, then in 2008 the All Indonesia Wrestling Association (PGSI) of Bukittinggi City was formed. A predecessor and leader of wrestling in the city of Bukittinggi is Dasril. PGSI Bukittinggi City fosters 20

wrestling athletes who are still active and outstanding to date.

The achievements that have been achieved by the athletes of the city of Bukittinggi are efforts to develop the sport of wrestling in the city of Bukittinggi. The development of wrestling athletes' achievements is handed over directly to each branch management in KONI Bukittinggi City. Related to the coaching and development of the achievements of wrestling athletes in Bukittinggi City, it should be developed in accordance with current technological advances. A qualified wrestling athlete coach can apply science scientifically in the field of sports which can ultimately give birth to an outstanding wrestling athlete.

The achievements of wrestling athletes in Bukittinggi City are already proud. However, the achievements of wrestling athletes in Bukittinggi City were unstable and experienced a decline in the 2018 Padang Pariaman Regency Porprov match. In order to achieve achievements, elements of good physical condition and basic techniques are needed. This is in agreement with the research of M. Agus Saputra (2019) who said that good physical condition is the main basis in every sport, including wrestling.

In applying perfect techniques and maximum achievement in the sport of wrestling, there are several aspects that need special attention, namely mental training, physical training, tactical training, and technique training. In some experts' view, the physical aspect is the foundation of the sport of wrestling. The process of coaching wrestling athletes in Bukittinggi City mentally has a lot of problems. These mental problems are caused by a lack of trial matches, sparring partners, and match experience. Mental training can train wrestling athletes can increase strength for wrestling athletes in overcoming fatigue and fighting anxiety in facing every exercise done by wrestling athletes in Bukittinggi City.

Physical condition is how far the ability to do or carry out sports (Ningsih & Jatmiko, 2021). According to Jonath Krempel (in Irawadi, 2014:1) said that physical condition is a condition that includes the factors of strength, speed, endurance, flexibility, and coordination. In addition, Firdaus (2017:4) also argues that physical condition is a part or basic ability that every athlete should have with the aim of achieving a sports achievement, namely all physical abilities that can determine real achievements through self-ability.

Lately, there are many things that are more popular than physical build-up, namely physical conditioning which means maintaining physical condition/state. Physical condition is a very important condition in an effort to improve the achievement of an athlete, and can be called a basic interest that cannot be postponed or ignored.

In improving and achieving an achievement, sportsmen should have 4 components of sports achievement, namely: 1) Physical Condition, 2) Technical Skills (Motor Skills), 3) Strategies and Tactics, 4) Mental (Psychic) (Firdaus, 2017:4-6). The development of increasingly advanced knowledge makes the term develop according to the function referred to in that sense.

In improving physical condition, there are several components that must be developed including muscle strength, aerobic endurance, speed, and flexibility. This is in agreement stated by Affrila Gugun Arie (2021), physical aspects are the basis for achievement in wrestling such as aerobic endurance levels, muscle strength, reaction speed levels, and flexibility are important parts needed in wrestling. Therefore, coaches, coaches, and wrestling athletes need to know the physical elements needed by athletes.

Based on this, there is no accurate data on the physical condition of PGSI Bukittinggi City. Therefore, researchers are interested in conducting research on how coaches carry out the training process and what is the level of physical condition of wrestling athletes in Bukittinggi City.

Based on the explanation above, the researcher found a problem. The problem that arises based on the researcher's observation is that the process of coaching wrestling athletes in Bukittinggi City mentally has many problems so that from year to year the physical training of the athletes decreases. This is because the technical training and mastery of tactics used by athletes are not perfect and optimal. Based on these problems, the purpose of this study is to determine the level of aerobic endurance, muscle strength, reaction speed, and flexibility of wrestling athletes in Bukittinggi City.

1. Materials and Methods

The type of research used in this study is a descriptive research that aims to find out the level of physical condition of wrestling athletes in Bukittinggi City. This research was conducted at SMP N 5 Bukittinggi with a implementation time in December 2023. The population in this study is 10 wrestling athletes in Bukittinggi City in 2023. Based on the population picture that has been described, the sampling technique used is a total sampling with a total sample of 10 people. The instruments used in this study are: 1) Arm Muscle Strength Test using Pull-up. 2) Reaction Speed Test using Whole Body Reaction Test. 3) Body Flexibility Test using Bride-up. 4) Aerobic Endurance Test using Bleep Test. The procedure in the research is the stages that will be carried out by the researcher: 1) Obtaining a research permit from the Faculty of Sports Sciences, Padang State University. 2) Conduct an inspection of the measuring instruments to be used by experts. 3) Get recommendations to conduct research on wrestling athletes in Bukittinggi City. 4) Prepare experts and assistants. The data collection technique in this study uses a physical ability test to measure the physical condition of wrestling athletes in Bukittinggi City which will be tested on wrestling athletes who are used as samples in this study.

2. Result

Arm Muscle Strength

Based on the results of the research on tests and measurement of arm muscle strength of Bukittinggi City wrestlers using pull ups, of the 10 Bukittinggi City wrestling athletes who were the research sample, there was the highest score of 20 and the lowest score of 1. From these results, there was an average value of 11 and a standard deviation of 6.3. For more clarity, the researchers describe it in the following table.

Table 1. Frequency Distribution of Arm Muscle Strength Data of Wrestling Athletes in Bukittinggi City

Classification	Absolute Frequency (fa)	Relative Frequency (rl)	Category
16 and above	3	30	Very good
11-15	2	20	Good
6-10	3	30	Keep
2-5	1	10	Less
0-1	1	10	Less Than Once
Sum	10	100%	

Based on the distribution table above, it can be known the strength of the arm muscles of wrestling athletes in Bukittinggi City. The explanation of the value of arm muscle strength of Bukittinggi City wrestling athletes is as follows. First, the highest score in the score range of >16 with the very good category was obtained by 3 athletes (30%). Second, those who have arm muscle strength in the 11-15 value range with the good category obtained by 2 athletes (20%). Third, athletes who have arm muscle strength in the 6-10 value range with the medium category were obtained by 3 athletes (30%). Fourth, athletes with arm muscle strength in the 2-5 value range with the under-1 category obtained by 1 athlete (10%). Fifth, athletes with arm muscle strength in the 0-1 value range with the category of less than once obtained by 1 athlete (10%). From the data analysis, the average value of the arm muscle strength of wrestling athletes in Bukittinggi City was 11.5, so the arm muscle strength of wrestling athletes in Bukittinggi City was in the good category.

React speed

Based on the results of the reaction speed measurement test using the Whole Body Reaction tool in Bukittinggi city wrestling athletes, from 10 Bukittinggi City wrestling athletes there was the highest score of 0.397 and the lowest score of 0.615 with an average score of 0.802 and a standard deviation of 0.077. The data on the frequency distribution of wrestling athletes' reaction speed can be seen in the table below.

Table 2. Frequency Distribution of Reaction Speed Data of Wrestling Athletes in Bukittinggi City

Classification	Absolute Frequency (fa)	Relative Frequency (fr)	Category
<0.320	0	0	Very good
0,321-0,420	2	20	Good
0,421-0,520	5	50	Keep
0,521-0,620	3	30	Less
>0.621	0	0	Less Than Once
Sum	10	100 %	

Based on the distribution table of reaction speed of wrestling athletes above, it can be known that. First, those that have a reaction speed with a value range of 0.321-0.420 with the good category obtained by 2 athletes (20%). Second, athletes who have a reaction speed in the range of 0.421-0.520 with the medium category were obtained by 5 athletes (50%). Third, athletes with reaction speed in the range of 0.521-0.620 with the under-category were obtained by 3 athletes (30%). From the data analysis, the average value of the arm muscle strength of Bukittinggi City wrestlers was 0.802, so the reaction speed of Bukittinggi City wrestlers was in the good category.

Flexibility

Based on the results of the flexibility measurement test using Bridge-Up in Bukittinggi city wrestling athletes, of the 10 Bukittinggi City wrestling athletes, there was the highest score of 45.6 and the lowest score of 32.6 with an average score of 40.75 and a standard deviation of 4.38. The frequency distribution data of wrestling athletes can be seen in the table below.

Table 3. Frequency Distribution of Data on the Flexibility of Wrestling Athletes in Bukittinggi City

Classification	Absolute Frequency (fa)	Relative Frequency (fr)	Category
>49.1	0	0	Tall
43,0-49,0	4	40	Good
36,9-42,9	4	40	Enough
30,8-36,8	2	20	Keep
<30.7	0	0	Low
Sum	10	100%	

Based on the distribution table above, it can be known the flexibility of wrestling athletes in Bukittinggi City. The explanation of the value of flexibility of Bukittinggi City wrestling athletes is as follows. First, the highest score in the >49.1 value range with the high category was obtained by 0 athletes (0%). Second, those who have flexibility in the range of 43.0-49.0 with a good category were obtained by 4 athletes (40%). Third, athletes who have flexibility in the score range of 36.9-42.9 with the category of enough are obtained by 4 athletes (40%). Fourth, athletes with flexibility in the value range of 30.8-36.8 with the medium category were obtained by 2 athletes (20%). Fifth, athletes with flexibility in the range

of <30.7 with a low category were obtained by 0 athletes (0%). From the data analysis, it was obtained that the average value of flexibility of wrestling athletes in Bukittinggi City was 40.75, so the arm muscle strength of Bukittinggi City wrestlers was in the good category.

Aerobic Endurance

Based on the results of the test research and the measurement of aerobic endurance of Bukittinggi City wrestling athletes using the bleep test, of the 10 Bukittinggi City wrestling athletes who were the research sample, there was the highest score of 55.7 and the lowest score of 27.6. From these results, there was an average value of 43.24 and a standard deviation of 8.8. For more clarity, the researchers describe it in the following table.

Table 4. Frequency Distribution of Aerobic Endurance Data of Wrestling Athletes in Bukittinggi City

Classification (ml/kg/min)	Absolute Frequency (fa)	Relative Frequency (fr)	Category
>53	1	10	Very good
43-52	4	40	Good
34-42	3	30	Keep
25-33	2	20	Less
<24	0	0	Less Than Once
Sum	10	100%	

Based on the distribution table above, it can be known the aerobic endurance of Bukittinggi City wrestling athletes. The explanation of the aerobic endurance value of Bukittinggi City wrestling athletes is as follows. First, the highest score in the value range of >53 ml/kg/min with the very good category was obtained by 1 athlete (10%). Second, which has aerobic endurance in the range of 43-52 ml/kg/min with a good category obtained by 4 athletes (40%). Third, athletes who have aerobic endurance in the range of 34-42 ml/kg/min with the medium category were obtained by 3 athletes (30%). Fourth, athletes with aerobic endurance in the value range of 25-33 ml/kg/minute with the category of less obtained by 2 athletes (20%). From the data analysis, the average value of aerobic endurance of Bukittinggi City wrestling athletes was 43.24 ml/kg/minute, so the aerobic endurance of Bukittinggi City wrestling athletes was in the good category.

3. Discussion

Arm Muscle Strength of Men's Wrestling Athletes in Bukittinggi City

Based on the measurement of the arm muscles of the Bukittinggi city wrestling athletes using pull ups, of the 10 Bukittinggi city wrestling athletes who were studied, there was the highest score of 20 and the lowest score of 1. From these results, there was an average value of 11 and a standard deviation of 6.3. The highest score in the value range of >16 with the "very good" category was obtained by 3 athletes (30%), who had arm muscle strength in the value range of 11-15 with the "good" category was obtained by 2 athletes (20%), athletes who had arm muscle strength in the value range of 6-10 with the "moderate" category was obtained by 3 athletes (30%),

then athletes with arm muscle strength in the value range of 2-5 with the category "less" were obtained by 1 athlete (10%). Finally, athletes with arm muscle strength in the value range of 0-1 with the category of "less once" were obtained by 1 athlete (10%).

The results of the study are still not optimal, because out of 10 wrestling athletes, the highest niai range, which is >16, was only obtained by 3 wrestling athletes. In the sport of wrestling, good arm muscle strength is needed by a wrestling athlete, as the wrestler will do a lot of movements such as rolls, slams, pushes and pulls.

Reaction Speed of Bukittinggi City Men's Wrestling Athletes

Based on the results of the reaction speed measurement test using the Whole Body Reaction tool in Bukittinggi city wrestling athletes, from 10 Bukittinggi City wrestling athletes there was the highest score of 0.397 and the lowest score of 0.615 with an average score of 0.802 and a standard deviation of 0.077. Athletes who had a reaction speed with a value range of 0.321-0.420 with the "good" category were obtained by 2 athletes (20%), reaction speed in the value range of 0.421-0.520 with the "medium" category was obtained by 5 athletes (50%) and athletes with a reaction speed in the value range of 0.521-0.620 with the "less" category were obtained by 3 athletes (30%).

The results of the study are still not optimal, because a person should have a reaction speed in the highest value range, which is 0.320. Therefore, the Bukittinggi City wrestling coach should provide training programs that can increase the reaction speed of wrestling athletes. The speed of reaction in the sport of wrestling is very important for wrestling athletes to master. An athlete who has a good reaction speed can make it easier for the athlete to read the opponent's movements and can anticipate the movements launched by the opponent. Athletes who have a low reaction speed will have difficulty in reading the opponent's movements so that the opponent will be free to read the weaknesses in the wrestling technique possessed by the athlete.

Flexibility of Bukittinggi City Men's Wrestling Athletes

Based on the results of the flexibility measurement test using Bridge-Up in Bukittinggi city wrestling athletes, of the 10 Bukittinggi City wrestling athletes, there was the highest score of 45.6 and the lowest score of 32.6 with an average score of 40.75 and a standard deviation of 4.38. Athletes who have flexibility in the value range of 43.0-49.0 with the "good" category are obtained by 4 athletes (40%), athletes who have flexibility in the value range of 36.9-42.9 with the category "adequate" are obtained by 4 athletes (40%), athletes with flexibility in the value range of 30.8-36.8 with the "medium" category are obtained by 2 athletes (20%).

The results of the study on the flexibility of wrestling athletes in Bukittinggi City show that the flexibility of wrestling athletes is still far from the highest level that should be mastered by an athlete. Therefore, it is hoped that the Bukittinggi city wrestling coach will think more about training programs and methods that can increase the flexibility of wrestling athletes. In wrestling, an athlete who has a good condition of flexibility can make it easier for athletes to perform slamming and rolling techniques to

opponents. On the other hand, athletes who have a low condition of flexibility will have difficulty in performing slamming and rolling techniques to opponents.

From this, it can be explained that waist flexibility has an important role, because in the slamming and rolling techniques, good waist flexibility conditions are needed.

Aerobic Endurance of Bukittinggi City Men's Wrestling Athletes

Based on the results of the research on tests and measurements of aerobic endurance of Bukittinggi City wrestling athletes using bleep test, of the 10 Bukittinggi City wrestling athletes who were the research sample, there was the highest value of the "highest" value in the range of values >53 ml/kg/min with the "good" category once obtained by 1 athlete (10%), aerobic endurance in the value range of 43-52 ml/kg/min with the "good" category obtained by 4 athletes (40%), The value range of 34-42 ml/kg/min with the "medium" category was obtained by 3 athletes (30%), aerobic endurance in the value range of 25-33 ml/kg/min with the "less category" was obtained by 2 athletes (20%).

The data shows that the aerobic endurance of wrestling athletes in the city of Bukittinggi is almost at the highest level of vo2max that an athlete should have. Aerobic endurance is a component of the body's physical and biomotor condition that can perform activities for a relatively long time without experiencing fatigue.

4. Conclusion

Based on the results of data analysis from the discussion, four things can be concluded as follows. First, the level of arm muscle strength of male wrestling athletes in the city of Bukittinggi using pull ups is in the good category with an average score of 11. Second, the reaction speed level of male wrestling athletes in Bukittinggi city using the Whole Body Reaction tool was in the medium category with an average value of 0.802. Third, the flexibility level of male wrestling athletes in the city of Bukittinggi using Bridge-Up is in the medium category with an average score of 40.75. Fourth, the aerobic endurance level of male wrestling athletes in the city of Bukittinggi bleep test is in the good category with an average score of 43.24.

REFERENCES

- Alcott Thomas. 2023. *Being "Real" in a Staged Sport: the Process and Negotiation of Authenticity in Wrestling Star Images*. *Celebrity Studies*, 1-16.
- Al Wafi, Rohmat. 2022. *Upaya Meningkatkan Kondisi Fisik Atlet Gulat Remaja dan Junior Banyuwangi Setelah Masa Pandemi*. *SPJ: Sport Pedagogy Journal*, 1(1), 19-34.
- Andreato Leonardo Vidal, et al. 2017. *Physical and Physiological Profiles of Brazilian Jiu-Jitsu Athletes: a Systematic Review*. *Sports Medicine*, 3(9), 1-17.
- Ardi, Deby Meilani. 2020. *Tinjauan Kondisi Fisik Atlet Bulutangkis Klub PBSI Kota Payakumbuh*. *Jurnal Pendidikan dan Olahraga*, 3(10), 25-32.
- Arie, Afrilla Gugun. 2021. *"Tinjauan Kondisi Fisik Atlet Gulat Kabupaten Dharmasraya"*. *Jurnal Pendidikan dan Olahraga*.

- Aristrianto, Rio. 2020. *Tinjauan Kondisi Fisik Pemain Bola Voli SMA Negeri 1 Lembah Melintang Kabupaten Pasaman Barat*. Jurnal Pendidikan dan Olahraga, 3(5), 1-6.
- Arsil. 2008. *Pembinaan Kondisi Fisik*. Padang: UNP Padang.
- Arsil. 2015. *Evaluasi Pendidikan Jasmani dan Olahraga*. Malang: Wineka Media.
- Aziz, Ishak. 2016. *Dasar-dasar Penelitian Olahraga*. Jakarta: Kencana.
- Bafirman. 2019. *Pembentukan Kondisi Fisik*. Depok: Rajawali Pers.
- Bridge, at al. 2014. *Physical and Physiological Profiles of Taekwondo Athletes*. Sports Med, 44, 713-733.
- Cania Abdul Afiq, Alnedral. 2019. *Tinjauan Kondisi Fisik Atlet Atletik Jarak Menengah Unit Kegiatan Universitas Negeri Padang*. Jurnal Pendidikan dan Olahraga, 2(1), 192-197.
- Chaabene Helmi, at al. 2017. *Physical and Physiological Attributes of Wrestlers: An Update*. Journal of Strength and Conditioning Research, 31(5), 1411-1442.
- Chhana Rahul, at.al. 2022. *Collegiate Wrestler With a Bicuspid Aortic Valve and Aortic Dilation*. Clinical Case: Sports Cardiology, 4(22), 1548-1552.
- Dafer Nilla. 2019. *Review of Physical Condition of Wrestling Athletes*. Atlantis Press, 460, 166-168.
- Demirkan, at al. 2015. *Comparison of Physical and Physiological Profiles in Elite and Amateur Young Wrestlers*. Journal of Strength and Conditioning Research, 29(7), 1876-1883.
- Faridatul, Dkk. 2021. *Tinjauan Kondisi Fisik Atlet pada Klub Sepakbola BASOCA di Kecamatan Bukik Barisan Kabupaten Lima Puluh Kota*. Jurnal Olahraga Kebugaran dan Rehabilitasi, 1(2), 125-133.
- Febrio, Muhammad. 2019. *Tinjauan Kondisi Fisik Atlet Putra Bulutangkis PB. Formulan Kota Padang Panjang*. Jurnal Pendidikan dan Olahraga, 2(3), 12-15.
- Fernandes, Heru. 2019. *“Tinjauan Pembinaan Olahraga Gulat di Kabupaten Solok”*. Jurnal Pendidikan dan Olahraga, 2(4), 34-36.
- Fiadi Raja Okto, Dkk. 2023. *Tinjauan Kondisi Fisik Pemain Futsal Club Jemaja Kabupaten Kepulauan Anambas*. Jurnal Pendidikan dan Olahraga, 6(8), 87-94.
- Firdaus, Efendy. 2017. *Buku Ajar: Pembentukan Kondisi Fisik*. Padang: Fakultas Ilmu Keolahagaan UNP.
- Fitria Zaki, Dkk. *Tinjauan Kondisi Fisik Atlet Gulat kabupaten Solok*. Jurnal Pendidikan dan Olahraga, 6(11), 159-165.
- Gardiner E Norman. 2013. *Wrestling*. The Journal of Hellenic Studies, 25, 14-31.
- Garcia Jesus, at al. 2011. *Physical Fitness Factors to Predict Male Olympic Wrestling Performance*. Eur J Appl Physiol, 111, 1747-1758.
- Giriwijoyo. 2013. *Ilmu Kesehatan Olahraga*. Bandung: Remaja Rodaskarya.
- Harsono. 2018. *Latihan Kondisi Fisik: Untuk Atlet Sehat Aktif*. Bandung: Remaja Rodaskarya.
- Heidary Akbar, at.al. 2011. *Effect of Exercise on the Level of violence (Aggression) in the Selected Male Students of Wrestling and Karate in Zanjan-Iran*. Procedia: Sosial and Behavioral Sciences, 30, 2416-2427.
- Hutapea, Gunawan. 2020. *Profil Kondisi Fisik Atlet Club Gulat Sumber Juara Medan Menuju PON 2024 Sumut-NAD*. Jurnal Cendekia: Media Jurnal Ilmiah Pendidikan, 10(2), 120-125.
- Irawadi, Hendri. 2019. *Kondisi Fisik dan Pengukurannya*. Padang: Sukabina Press.
- Irianto, Djoko Pekik. 2004. *Bugar dan Sehat dengan Berolahraga*. Yogyakarta: Andi Offset.
- Ismaryati. 2011. *Tes dan Pengukuran Olahraga*.Surakarta: UNS.
- Jagim Andrew R, at al. 2014. *Collegiate Woman's Wrestling Body Fat Percentage and Minimum Wrestling Weight Values: Time for Revisiting Minimal Body Percent?.* Journal of the International Society of Sports Nutrition,21(1), 143- 154.
- Kurniawan Dedi, Arwandi Jhon. 2020. *Tinjauan Kondisi Fisik Atlet Renang Club Tirta Kaluang Padang*. Jurnal Patriot, 2(1), 111-119.
- Kurnia Nazma, Dkk. 2020. *Tinjauan Kondisi Fisik Atlet Cricket Putri Sumatera Barat*. Jurnal Patriot, 2(4), 991-1106.
- Lawrence, at al. 2006. *Back Pain in Athletes*. Journal of the American Academy of Orthopaedic Surgeons, 14, 726-735.
- Mahendra Nopi. 2024. *Tinjauan Tingkat Kondisi Fisik Pemain Bola Voli Putra Madrasah Aliyah Negeri Landak*. Jurnal Innovative: Journal Of Social Science Reseach, 4(1), 4171-4177.
- Mardalis. 2009. *Metode Penelitian (Suatu Pendekatan proposal)*. Jakarta: Bumi Aksara.
- Mulyadi Hendri & Nikon Badri. 2019. *Tinjauan Kondisi Fisik Atlet Bolabasket*. Jurnal Pendidikan Jasmani dan Olahraga, 2(2), 26-32.
- Nikolaidis & Son'kin. 2023. *Sport Physiology in Adolescent Track and Field Athletes: a Narrative Review*. Sports Medicine, 4, 59-68.
- Nur Hasriwandi. 2018. *Tinjauan Tingkat Kesegaran Jasmani Pada Siswa Putera yang Mengikuti Ekstrakurikuler Gular di SMP Negeri 30 Padang*. Jurnal Menssana, 3(1), 61-76.
- Putra, Andriko. 2022. *Tinjauan Kondisi Fisik Atlet Sepakbola SMA Negeri 3 Solok Selatan*. Jurnal Pendidikan dan Olahraga, 5(10), 7-13.
- Pratama Bayu Febrizal, Dkk. 2023. *Tinjauan Kondisi Fisik Pemain Voli Kabupaten Lima Puluh Kota Sumatera Barat 2023*. Jurnal Pendidikan dan Olahraga, 6(7), 126-134.
- Rambe, Rizki Ridwan, Dkk. 2023. *Tinjauan Kondisi Fisik Pemain Sepakbola Sekolah Keberbakatan Olahraga U-16 Sumatera Barat*. Jurnal Pendidikan dan Olahraga, 6(7), 111-128.
- Roklicer Robert, at al. 2022. *Prevalence of Rapid Weight Loss in Olympic Style Wrestlers*. Journal of the International Society of Sports Nutrition, 19(1), 593-602.
- Saputra Deka Ismi Moei. 2020. *Tinjauan Keterampilan Banting pada Atlet Gulat Kabupaten Bungo*. Jurnal Muara Olahraga, 2(2), 270-279.

- Saputra, M. A., Asmi, A. 2019. "Tinjauan Kondisi Fisik Atlet Gulat Kabuapten Solok". *Jurnal Pendidikan dan Olahraga*, 2(3), 6-8.
- Sarifudin Ahmad. 2023. *Kondisi Fisik dan Teknik Atlet Gulat di Kabupaten Blora*. *Indonesian Journal for Physical Education and Sport*, 4(2), 682-689.
- Shifani Sari Dhevi, Dkk. 2023. *Tinjauan Kondisi Fisik Pemain Futsal Putri PS Binatama Kabupaten Sarolangun Provinsi Jambi*. *Jurnal Pendidikan dan Olahraga*, 6(9), 188-197.
- Sugiyono. 2014. *Metode Penelitian Kuantitatif, kualitatif dan R&D*. Bandung: Alfabeta.
- Syafrian, Muhammad Diky. 2021." *Tinjauan Tingkat Kondisi Fisik Atlet Gulat Kadet Puta Kabupaten Solok*". *Jurnal Pendidikan dan Olahraga*.
- Taheri. M, et.al. 2023. *Mental Health, Eating Habits and Physical Activity Levels of Elite Iranian Athletes During teh Covid-19 Pandemic*. *Journal Science & Sports*, 38, 527-533.
- Widiastuti. 2015. *Tes dan Pengukuran Olahraga*. Jakarta: Raja Grafindo Persada.
- Yusuf, Gito. 2020. *Tinjauan Kondisi Fisik Atlet Bolabasket SMAN 1 Matur*. *Jurnal Patriot*, 2(1), 159-170.