

## The influence of concentration, endurance and confidence on the shooting ability of PERBAKIN athletes

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### ABSTRACT

**Problems:** The problem of this research is the low shooting ability of pistol athletes. Low shooting ability is influenced by several factors, such as concentration, endurance and self-confidence. **Purpose:** This study aims to reveal the direct and indirect effects, as well as the simultaneous influence between variables. **Methods:** This type of research is quantitative associative with a path analysis approach. **Results:** The results of hypothesis testing show: (1) there is a direct effect of concentration on shooting ability ( $\beta_1 = 0.334$  or 11.1%), (2) there is a direct effect of endurance on shooting ability ( $\beta_2 = 0.349$  or 12.1%), (3) there is a direct effect of self-confidence on shooting ability ( $\beta_3 = 0.440$  or 19.3%), (4) there is an indirect effect of concentration on shooting ability through self-confidence ( $\beta_{31} \cdot \beta_3 = 0.234$  total effect 32.3%), (5) there is an indirect effect of endurance on shooting ability through self-confidence ( $\beta_{32} \cdot \beta_3 = 0.272$  total effect 38.6%), and (6) there is an effect of flexibility, agility and concentration simultaneously on shooting ability ( $R^2 = 0.931$  or 93.1%). **Conclusion:** The Ability of Table Tennis Footwork of Extracurricular Students of SMP N 2 Tungkal Ulu is influenced by the three factors that have been explained or it can be interpreted, that the ability of Table Tennis Footwork can be improved if athletes have good flexibility, agility and concentration variables. The efforts that can be made are increasing flexibility, agility and concentration by doing exercises in a planned, continuous manner and in accordance with the principles of training.

**Keywords:** concentration, endurance, confidence and shooting ability

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### Introduction

As shooting becomes more known among the public, the West Sumatra Regional PERBAKIN administrators become more diligent in holding shooting events in various classes and ages. Apart from aiming to promote shooting, this event is also to see how far the abilities of West Sumatran athletes have developed in preparation for the National Match. Coaching without the athlete's desire to prepare concentration and physical condition, especially endurance, to support self-confidence, talent and ability, the athlete will not reach the peak point of his performance. (Mon-López et al. 2019) concluded that athletes must train physically and psychologically in addition to technical training, for higher achievements and to avoid injuries. Psychology in (Wibowo and Rahayu 2016) is mental which is an important factor in shooting sports because it requires high concentration. Because there will definitely be mental disorders from outside and within themselves which will make it difficult for athletes to achieve maximum results.

Concentration is not an innate trait that a person has, but an ability that must be trained. When someone is focusing their concentration, the object being focused on becomes the main target of concentration, so that the information obtained is only the information that has been selected. Sharpened focus increases the likelihood that a person can absorb and understand information better. Good concentration will make athletes more able to control the stability of their shots, receiving only the information they need and ignoring information that is not important when it is very helpful in executing the shot. Thus, concentration makes a significant contribution to shooting ability.

The physical part (Mon-López et al. 2019) strength, coordination, balance and endurance, which are the main abilities which are important physical capacities that influence performance when shooting. Physical training as stated by (Kamseno, Sujiono, and Apriyanto 2016) to minimize body movement when

the shooter is standing is something that is challenging for the shooter, weapon grip and balance are things that need to be considered for this. Meanwhile in the ISSF D license training book (Kilty et al. 2010) it is explained:

According to shooters, the first thing that must be trained is aerobic capacity and strength. "Even though writing about this main need is very rare, there are several authors who recommend aerobic exercise with a low to moderate heart rate, isometric strength, and strength training with low or moderate loads.

According to (Açıkada et al. 2019) taking aim and shooting alternately demands strength and endurance when viewed comparatively, both during training and competition. The advantage of endurance for shooting athletes is that it will increase the performance of the heart, lungs and circulatory system, these three components are an important part of developing concentration. Good physical condition also has its own psychological benefits for a shooter, increasing self-confidence, facilitating maintaining blood sugar levels and adapting quickly to new environments (Kilty et al. 2010). Accuracy when aiming is greatly influenced by the rhythm of movement of the chest cavity, abdomen, shoulder system so that every breath that occurs can cause movement in aiming accuracy and breathing is a process that occurs without being influenced by brain commands, works involuntarily, is related to blood flow and the distribution of oxygen. The amount of oxygen the body can take in determines muscle performance and the amount of waste substances that cause fatigue (Vipassiwan et al. 2018).

Endurance is a physical condition that is able to work for a long time without experiencing significant fatigue after completing a job. Endurance functions to maintain physical condition during the game. Then endurance plays an important role in maintaining emotional stability when playing. Without good endurance it can affect the good and bad of a player's performance on the field. Aerobic endurance (VO<sub>2</sub>max) is a person's ability to use oxygen during activities optimally. Through shooting sports, a person is trained and required to be able to concentrate highly, be able to control themselves and have the courage to make decisions quickly and accurately. Thus, endurance makes a significant contribution to shooting ability.

From the opinions of the experts above, it can be seen that concentration and physical condition, especially endurance, can increase self-confidence, which is an important element for the development and improvement of shooting athlete performance. The coach should be aware of this and include it in the training program that the athlete will carry out, but maximum achievement in the training program also requires self-awareness from the athlete.

Self-confidence is a very important aspect of personality in human life. Confident people believe in their own abilities and have realistic expectations, even when their hopes do not come true, they still think positively and can accept it. Self-confidence strengthens motivation to achieve achievement because the higher the belief in one's abilities, the stronger the enthusiasm for trying to achieve achievement. The level of self-confidence is a predictor of success in every competition, therefore athletes who have self-confidence will be consistent in their attitudes and actions. Athletes who have self-confidence will interpret and evaluate their abilities. Optimal self-confidence makes athletes more confident in their abilities. Thus, self-confidence makes a significant contribution to shooting ability.

This self-confidence focuses on an athlete's abilities and is determined by his cognitive level. Lauster said in (Yulianto and Nashori 2006) self-confidence is being confident that you can do something well so as to reduce anxiety in acting, being more flexible and free to do things you like and being responsible for your actions, being warm and polite in interacting with people and having encouragement. to excel. Meanwhile, in (Apriansyah et al. 2017) self-confidence is very important for performance, self-confidence generates positive emotions. The pleasure, enthusiasm and lightness that accompanies self-confidence in performing a performance will motivate you to perform actions freely, strongly, quickly and fluidly. It is known that things that influence self-confidence in athletes are physical, mental conditions and social support as mentioned in (Sakti and Rozali 2015). So, it can be concluded that this self-confidence is very important for improving an athlete's shooting ability.

In my observations with coaches and several athletes, data was obtained that many athletes lost their confidence when they missed one shot. This can cause the value of the next shot to decrease further. Apart from that, athletes do not realize that the factors that influence self-confidence are physical and psychological readiness, they think that good shooting results come from the talent they have. As we know, talent without practice and thorough preparation will not develop. The shooting competition lasted for 75 minutes which proves that a shooting athlete actually requires good endurance and during those 75 minutes 60 shots were fired which required the athlete to have high concentration. Meanwhile, self-confidence appears when physically and psychologically you meet the criteria to become an athlete.

From the explanation above, concentration, endurance and self-confidence are important factors that influence an athlete's shooting ability, this needs to be proven through research. With this research, it is hoped that it can solve problems and provide positive input for coaches to increase the performance of PERBAKIN athletes in future events.

**Method**

The method used in this research is a quantitative method using a Path Analysis approach, namely using a structural equation that looks at the causality of the dimensions of the influence of concentration (X1), endurance (X2), self-confidence (X3) on an athlete's shooting ability shoot (Y). According to (Kadir 2015) path analysis is an analytical technique used to study causal relationships between independent variables and dependent variables, which are arranged in the form of a hypothetical model based on scientific substance such as theoretical foundations or researcher experience. This test really depends on the strength and weakness of the theory underlying the hypothetical model that has been prepared. This research was conducted to see whether or not there was a direct and indirect influence of the independent variable on the dependent variable through the use of the Path Analysis method. The implementation of this research was carried out at Brimob Padang Panjang City. The population is the entire object studied in this research, namely 36 shooting athletes. The sample is part of the number of characteristics possessed by the population. The sampling technique in this research uses the census method (saturated sampling). The sample used in this research was 36 people who were shooting athletes, consisting of 20 men and 16 women.

The instrument used to measure the concentration of shooting athletes by looking at the largest number that can be connected within 60 seconds is obtained from a concentration test, namely gird concentration (Mylsidayu 2014). Measuring endurance by looking at the highest reversal obtained from the test (Multistage Fitness Test) or commonly called the Beep test (Irawadi 2014). Meanwhile, the way to measure self-confidence is by distributing questionnaires that have been previously validated by experts. In this study, shooting ability was measured using a competition system in accordance with applicable ISHA regulations. Data analysis includes: (1) data description, (2) analysis requirements test which consists of: normality test and linearity test, (3) path analysis which includes: model testing and hypothesis testing.

**Results**

The research that has been carried out provides the following results:

**Table 1.** Summary of Overall Total Direct and Indirect Effects

path coeff	Direct Influence			Indirect Influence				Total Direct + Indirect Influence		
	Koef	(^2)	(%)	Intervening X <sub>3</sub>	Coeff	(^2)	(%)	Total coeff	(^2)	Total (%)
X <sub>1Y</sub> (P <sub>y1</sub> )	0,334	0,111	11,1	X1 to Y through X3	0,534	0,285	28,5	0,234	0,323	32,3
X <sub>2Y</sub> (P <sub>y2</sub> )	0,349	0,121	12,1	X2 to Y through X3	0,619	0,383	38,3	0,272	0,386	38,6
X <sub>3Y</sub> (P <sub>y3</sub> )	0,440	0,193	19,3					0,440	0,193	19,3
<b>Total Direct + Indirect Influence</b>								<b>0,923</b>	<b>0,923</b>	<b>92,1</b>
<b>Influence of Other Variables</b>								<b>0,076</b>	<b>0,076</b>	<b>8,06</b>

Based on the table above, the overall total direct and indirect influence through the intervening variable self-confidence of PERBAKIN West Sumatra men's pistol athletes is 90.3%, while the remaining 9.63% is another factor that is not explained in this research.

**Discussion**

Based on the results of research conducted, there is a direct influence of concentration on the shooting ability of PERBAKIN West Sumatra pistol athletes. The path coefficient results for men obtained  $p_{y1} = 0.334$  and the Sig value =  $0.019 < \alpha = 0.05$  or  $t_{count} = 4.547 > t_{table} = 1.684$ . The magnitude of the direct influence of concentration on the shooting ability of PERBAKIN West Sumatra pistol athletes is 11.1%, while the remainder is influenced by other factors not explained in this study. The concentration aspect is a very dominant aspect and has a big influence on achievement. Concentration is focusing attention for a long period of time according to Nusufi and Singgih Dalam (Komaini and Elvian 2020). Focusing attention or concentrating is indeed a very difficult thing to do, but as stated in Katakana (Mylsidayu 2014) in his book said that concentration is really needed, especially for sports that require high concentration,

one of which is archery and shooting because this sport requires precision, accuracy, consistency and sharpness in every action of every arrow or bullet that is shot.

There is a direct influence of endurance on the shooting ability of PERBAKIN West Sumatra pistol athletes. The path coefficient results for men obtained  $\beta_2 = 0.349$  and the Sig value =  $0.007 < \alpha = 0.05$  or  $t_{count} = 1.815 > t_{table} = 1.684$ . The magnitude of the direct influence of endurance on the shooting ability of PERBAKIN West Sumatra pistol athletes is 12.1%, while the remainder is influenced by other factors not explained in this study. Endurance is always related to the length of work (duration) and work intensity or can be interpreted as the ability to work muscles or body organs continuously for a certain period of time without experiencing excessive fatigue. The aim is to increase the athlete's ability to overcome fatigue during work activities, where fatigue What happens can be physical or psychological (Mylsidayu and Kurniawan 2019). The level of endurance obtained from the VO2Max test describes the body's effectiveness in getting oxygen, then sending it to the muscles and other cells and using it to provide energy. From research (Irawan et al. 2020) It can be explained that a person with a high level of endurance has a strong heart to pump more blood, a small heart rate but still able to meet the overall blood volume supply. As is known, accuracy when aiming is greatly influenced by the rhythm of movement of the chest cavity, abdomen, shoulder system so that every breath that occurs can cause movement in the accuracy of the shot. So reducing heart rate is very helpful in maintaining shooting accuracy.

There is a direct influence of self-confidence on the shooting ability of PERBAKIN West Sumatra pistol athletes. The path coefficient results for men obtained  $\beta_3 = 0.440$  and the Sig value =  $0.000 < \alpha = 0.05$  or  $t_{count} = 7.801 > t_{table} = 1.684$ . The magnitude of the direct influence of self-confidence on the shooting ability of PERBAKIN West Sumatra pistol athletes is 28.5% for men and 19.3% for women, while the remainder is influenced by other factors not explained in this study. Self-confidence is an individual's psychological state that can make him/herself feel confident to carry out an internal action (Melyana and Pujiastuti 2020). Apart from that, self-confidence can encourage a person's motivation to achieve success in solving a problem faced. Before understanding self-confidence, athletes should first be aware of themselves. Athletes must be aware of the emotions they feel and their thoughts about those emotions. Warmerdam in (Komarudin 2015) explains that self-awareness has a definite perception of one's personality, including strengths, weaknesses, thoughts, beliefs, motivations and emotions. If you look at shooting competitions, athletes do not overtake each other or compete for the highest point. Athletes are required to be able to beat themselves in terms of physical and psychological conditions. Seeing an opponent's score high or getting a low score or even going off target is the main opponent of shooting athletes who are competing. So, you need good self-confidence to be able to fight things like that.

Based on the results of the analysis test, the coefficient value of the indirect influence given by the Intervening variable is ( $\beta_1 \cdot \beta_3 = 0.234$ ). The total direct effect of concentration on shooting ability and the indirect effect provided by the self-confidence of PERBAKIN West Sumatra pistol athletes is 0.234 or 32.3%. Concentration is the ability to maintain focus on activities in an environment or atmosphere, when the environment changes rapidly (Mylsidayu 2014). Meanwhile, concentration is a skill that is very difficult for athletes to master, because the attention in the brain often changes, influenced by new stimuli. If the athlete fails to control his concentration, it is difficult to predict whether the athlete will be able to complete the task and it is even difficult to predict whether the athlete will win the match. As previously said, in shooting competitions, athletes do not overtake each other or compete for the highest point. Athletes are required to be able to beat themselves in terms of physical and psychological conditions. Seeing an opponent's score high or getting a low score or even going off target is the main opponent of shooting athletes who are competing. To be able to remain consistent at times like that requires good self-confidence but without good concentration, the athlete still cannot complete the task until the end. . Shooting is a sport with high concentration and complete self-confidence, athletes should be able to overcome various obstacles that occur on the field during competition well.

Based on the results of the analysis test, the coefficient value of the indirect influence given by the Intervening variable is ( $\beta_2 \cdot \beta_3 = 0.272$ ). The total direct influence of endurance on shooting ability and the indirect influence provided by the self-confidence of PERBAKIN West Sumatra pistol athletes is 0.272 or 28.6%. Endurance is a system of exerting energy (inhaling, distributing and using it for muscle contraction) using oxygen (Komaini and Chaidir 2019). Endurance is limited by the capacity of the circulation (heart, blood vessels and blood) and the respiratory system (lungs) to distribute oxygen to working muscles and transport waste from these muscles, as well as functioning to support the metabolic system (Fenanlampir and Faruq 2015). Physical condition is the ability to use the functions of one's body organs to improve techniques, tactics and strategies in order to excel in sports (Rasyid and Aristrianto 2020). So, it can be said that endurance is an important factor in improving shooting ability. Apart from that, there are other factors that influence shooting ability, namely self-confidence. According to Lauster, self-

confidence is deep (Rahmadani et al. 2021) is behavior and feelings of confidence in one's abilities, having responsibility, not being anxious in acting. A shooting athlete must have good endurance in order to be able to stand and raise a weapon approximately 80 times in 75 minutes, this way his confidence will increase. Meanwhile, shooting athletes also have to be confident in all the results of their shots. They must be aware that the training preparations and match preparations they have carried out will help develop full self-confidence.

The effect of concentration, endurance and confidence simultaneously on the shooting ability of PERBAKIN West Sumatra pistol athletes in the male category was 0.931 while in the female category it was 0.979. The results of this study show that the magnitude of the influence of concentration, endurance and self-confidence simultaneously on the shooting ability of PERBAKIN West Sumatra pistol athletes is 93.1% for men and 97.9% for women, while the rest are other factors not explained in this research. Starting a shooting achievement definitely requires shooting skills. Meanwhile, shooting ability is influenced by physical and psychological conditions, such as concentration, endurance and self-confidence as several main factors. An athlete's ability to compete is a manifestation of self-confidence, the same as a student's ability to make a presentation in front of the class, but self-confidence alone is not enough to win a match. The length of the match requires shooting athletes to have good endurance conditions, the foot position must consistently hinder the athlete's movement. Athletes must always be in the same stance from start to finish making it difficult for athletes to sit, proving the need for good endurance. Familiar shooting with high concentration focus. The distance between athletes is only 1 meter so fellow athletes can see the score of the opponent next to them. If the athlete does not have good concentration, it can be predicted that the opponent's score can cause his concentration to fall apart.

### Conclusion

The results of this research explain that the shooting ability of PERBAKIN West Sumatra pistol athletes is influenced by these three factors or can be interpreted as meaning that shooting ability can be maximized if they have the variables of concentration, endurance and self-confidence.

### References

- Açıkada, Caner, Tahir Hazır, Alper Aşçı, Sinem Hazır Aytar, and Cevdet Tmazcı. 2019. "Effect Of Heart Rate On Shooting Performance In Elite Archers." *Heliyon* 5(e01428):1–11. doi: 10.1016/j.heliyon.2019.e01428.
- Apriansyah, Beni, Sulaiman, and Siti Baitul Mukarromah. 2017. "Kontribusi Motivasi, Kerjasama, Kepercayaan Diri Terhadap Prestasi Atlet Sekolah Sepakbola Pati Training Center Di Kabupaten Pati." *Journal of Physical Education and Sports* 6(2):101–7.
- Fenanlampir, Albertus, and Muhammad Muhyi Faruq. 2015. *Tes Dan Pengukuran Dalam Olahraga*. 1st ed. edited by Munica Bendatu. Yogyakarta: CV Andi Offset.
- Irawadi, Hendri. 2014. *Kondisi Fisik Dan Pengukurannya*. 1st ed. edited by T. Editor. Padang: Universitas Negeri Padang Press.
- Irawan, Roma, Masyita Wati, Masrun, and Padli. 2020. "Pengaruh Latihan Aerobik Terhadap Penurunan Denyut Nadi Istirahat Pada Siswi SMA 10 Padang Dengan Berat Badan Berlebih." *Patriot* 2(4):1146–56.
- Kadir. 2015. *Statistika Terapan*. 2nd ed. Jakarta: PT Raja Grafindo Persada.
- Kamseno, Sigid, Bambang Sujiono, and Tirto Apriyanto. 2016. "Upaya Peningkatan Kemampuan Menembak Air Rifle 10 Meter Dengan Berlatih Keseimbangan Pada Siswa Latihan Lanjutan Menembak ( LLM )." *Jurnal Ilmiah Sport Coaching and Education* 2(2):75–85.
- Kilty, Kevin, Zeljko Todorovic, and Kimmo Yli-jaskari. 2010. "By Kevin Kilty, Zeljko Todorovic and Kimmo Yli-Jaskari © 2010." 1–17.
- Komaini, Anton, and Rizky Chaidir. 2019. "Pengaruh Latihan Interval Ekstensif Terhadap Daya Tahan Kardiovaskuler Pemain Ssb Putra Wijaya Padang." *Jurnal Stamina* 02(03):289.
- Komaini, Anton, and Rismon Elvian. 2020. "Kontribusi Tingkat Konsentrasi Terhadap Ketepatan Mendarat Atlet Paralayang Pada Spot Landing." *Jurnal Stamina* 3(4):195–206.
- Komarudin. 2015. *Psikologi Olahraga*. 3rd ed. Bandung: PT Remaja Rosdakarya.
- Melyana, Agni, and Heni Pujiastuti. 2020. "Pengaruh Kepercayaan Diri Terhadap Kemampuan Berpikir Kritis Matematis Siswa Smp." *JPMI (Jurnal Pembelajaran Matematika Inovatif)* 3(3):239–46. doi: 10.22460/jpmi.v3i3.239-246.
- Mon-López, Daniel, Francisco Moreira da Silva, Santiago Calero Morales, Olga López-Torres, and Jorge Lorenzo Calvo. 2019. "What Do Olympic Shooters Think about Physical Training Factors and Their Performance?" *International Journal of Environmental Research and Public Health* 16(23). doi:

- 10.3390/ijerph16234629.
- Mylsidayu, Apta. 2014. *Psikologi Olahraga*. 1st ed. Jakarta: Bumi Aksara.
- Mylsidayu, Apta, and Febi Kurniawan. 2019. *Ilmu Kepeleatihan Dasar*. 2nd ed. Bandung: Alfabeta.
- Rahmadani, Dwi Nur, Anny Wahyuni, and Ekawarna. 2021. "Pengaruh Kepercayaan Diri Terhadap Kemampuan Public Speaking Pada Mahasiswa Pendidikan Sejarah Universitas Jambi." *Jurnal Randai* 2(2):22–33. doi: 10.31258/randai.2.1.p.22-33.
- Rasyid, Willadi, and Rio Aristrianto. 2020. "Tinjauan Kondisi Fisik Pemain Bola Voli SMA Negeri 1 Lembah Melintang Kabupaten Pasaman Barat." *Jurnal Pendidikan Olahraga* 3(5):1–6.
- Sakti, Galuh, and Yuli Rozali. 2015. "Hubungan Dukungan Sosial Dengan Kepercayaan Diri Pada Atlet Cabang Olah Raga Taekwondo Dalam Berprestasi (Studi Pada Atlet Taekwondo Club Bjt, Kabupaten Tangerang)." *Jurnal Psikologi* 13(01).
- Vipassiwani, Sumedha, Iman Sulaiman, and Bambang Sujiono. 2018. "Pengembangan Model Latihan Dengan Permainan Dalam Olahraga Menembak Pada Anggota Klub Olahraga Prestasi Menembak Universitas Negeri Jakarta." *Jurnal Ilmiah Sport Coaching and Education* 2(2):138–49.
- Wibowo, Satrio Anggoro Putra, and Nur Indri Rahayu. 2016. "Pengaruh Latihan Mental Imagery Terhadap Hasil Tembakan Atlet Menembak Rifle Jawa Barat." *Jurnal Terapan Ilmu Keolahragaan* 1(2):23–29. doi: 10.17509/jtikor.v1i2.2776.
- Yulianto, Fitri, and Fuad Nashori. 2006. "Kepercayaan Diri Dan Prestasi Atlet Tae Kwon Do Daerah Istimewa Yogyakarta." *Jurnal Psikologi Universitas Diponegoro* 3(1):55–62.