The effect of mental imagery training on self-confidence of sparring category pencak silat athletes

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ABSTRACT

Problems: In the world of sports, psychological aspects cannot be separated from competition, there is a method that is often used in competitive sports that has been proven effective in increasing athlete self-confidence, namely mental imagery training because self-confidence is an important aspect in anything, especially for athletes in the pencak silat sport. **Purpose:** This study aims to determine the significant effect of the Imagery training method on the self-confidence of pencak silat athletes in the trading category. **Methods:** The experimental method used in this study is a nonequivalent control group design involving 16 Pencak Silat Club Gerana athletes-sample selection using a purposive sampling technique. Treatment of 16 meetings to the sample intensively, before and after treatment the sample will be given the State Sport Confidence Inventory (SSCI) to measure self-confidence. After obtaining the data, it was analyzed using SPSS Version 26 using the t-test. **Results:** The results of t value for experimental group was 5.148 with a Sig value. (2-tailed) of 0.001 and the results for conventional training result t count of 3.479 with a Sig value. (2-tailed) of 0.010. Based on the test results, both treatments the Sig. (2-tailed) value of both treatments is <0.05 so that H0 is rejected. For the results of the Independent sample t-test which aims to determine the difference in the effect of different treatments, the Sig. (2-tailed) value is 0.001 <0.05. So it can be stated that there is a significant difference in the effect of mental imagery training with conventional training on the self-confidence of pencak silat athletes in the competing category. **Conclusion:** This study concludes that the imagery training method has a more significant effect than conventional training in the form of relaxation and is recommended to be applied to the pencak silat sport in the competing category because it has been proven to increase athlete self-confidence.

Keywords: Imagery; Self-Confidence; Pencak Silat.

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Introduction

In pencak silat, there are several categories, including single, double, team, and sparring categories. This research focuses on athletes who are included in the sparring category. According to (IPSI, 2012) 'the sparring category is the appearance of two fighters facing each other using elements of defense and attack, namely, dodging, attacking targets and knocking down opponents using techniques and tactics of competing, endurance stamina and fighting spirit, using rules by utilizing a wealth of techniques and moves'. Based on the explanation above, namely sparring category pencak silat, optimal self-confidence is needed during the match so that athletes feel confident in their abilities, think positively, and are able to achieve what they want, because sparring category pencak silat involves psychological aspects such as

emotions and focus resulting from physical collisions. Related to psychology, achieving good self-confidence requires mental training. Mental training is a form of training that must be carried out by every athlete, especially specifically for sparring category pencak silat athletes who indeed in a match cause various kinds of pressure, such as pressure from the audience, coaches, parents, and their own opponents. According to (Juriana & Tahki, 2017) 'mental training is training that athletes do to improve the quality of their thinking in order to control an action. Mental training is an exercise that is carried out to increase mental resilience, one of which is self-confidence so that it can achieve achievements '. However, there are several types of mental training, including imagery, self-talk, visualization, and relaxation. This study focuses on mental imagery training.

Imagery is a form of mental exercise used to increase one's self-confidence, of course, this mental exercise must be done properly and correctly so that one's self-confidence can really increase. According to (Komarudin, 2015) 'mental imagery training has a positive impact on self-confidence, motivation, performance, and self-control'. Imagery is an attempt to recreate the experience in the mind, which is to recreate the experience in the brain. According to Setyobroto quoted (Komarudin, 2015) 'what is obtained from imagery training is that athletes see, feel, hear, that they are doing skills properly and correctly, this has a positive impact on skills, and imagery training is also able to create emotions or feelings from the results of experiences that have been passed such as anxiety, anger, pleasure, or pain'. Experience is an important product of memory that is recalled and then re-imagined in the mind so that it can be felt. Self-confidence is an important factor in all sports, self-confidence is a set of strong beliefs within oneself to obtain or achieve something desired. According to Saranson quoted (Komarudin, 2015) 'self-confidence is a feeling that contains the strength, ability, and skill to do and produce something based on inner confidence to succeed'. With the self-confidence of an athlete, he will be able to achieve what must be achieved. Self-confidence is a set of beliefs that every human being has, self-confidence can make someone achieve what he wants. An athlete who will face a match must have optimal self-confidence in order to face various challenges that occur during the match, including pressure from the audience, coaches, parents, and opponents.

Pre-teenage male athletes in the sparring category experienced a problem, namely in a competition held by UPI students with an event called Spartan Red Championship silat athletes from the Gerana club (Gerak Raga Buana) were unable to continue the match even though there was still time left to continue the match. Athletes feel they have done their maximum training but still lack confidence. According to (Hanton et al., 2004) if you have low self-confidence it will cause negative effects such as nervousness and confusion over what performance to do. During the match, athletes need to be confident in order to achieve success. Therefore, it is necessary to have treatment to overcome these problems. In the psychological aspect, the way to increase self-confidence is by providing treatment in the form of mental training. As well as the results of observations and recognition from the coach directly that mental training is rarely applied in training sessions, so far the training program given prioritizes the physical and technical aspects. Whereas if you want to have a tough mentality, athletes need to do systematic mental training.

This research must be carried out because the sparring category of Pencak silat is a dynamic sport, where athletes are required to have optimal self-confidence when competing in order to control anxiety, doubt, pain, and confusion, therefore it is necessary to have special treatment for athletes in the sparring category of pencak silat to increase athlete confidence. If the problem that occurs continues to be allowed it will have an impact on the achievements that athletes will achieve, for example, such as rarely getting a victory. Meanwhile, if athletes want to get a victory or achieve peak performance, it needs to be balanced with good, correct, systematic, and progressive mental training. Mental imagery training is expected to be a solution to this problem.

In previous research, mental imagery training was widely applied to game sports, however, this can make a gap where mental imagery training also needs to be proven for its impact on the confidence of pencak silat athletes, especially in the pre-teen sparring category. As in previous research conducted (Sufriyanto, 2019), namely mental imagery training given to Kerinci Regency football athletes has a significant effect on athlete self-confidence. In addition, in research conducted by (Nopiyanto et al., 2022)

the results of the study were that there was a significant effect of mental imagery training on the confidence of volleyball athletes. The previous research above was conducted on game sports and the previous research suggested conducting research on the effect of mental imagery training on other sports, and the authors also rarely see research on the effect of mental imagery training on the self-confidence of sparring category pencak silat athletes at pre-teen age. So that the novelty of this research is that the sample used was from the martial arts sport, namely pencak silat with the category of sparring in the pre-teen age. Therefore, based on the background of the problems described above, the authors are interested in knowing the effect of mental training in this case focused on mental imagery training on the confidence of sparring category pencak silat athletes.

Method

The method in this study is an experimental method using true experimental design because in this design the author can control all external variables that affect the course of the experiment (Creswell, 2018). This study consists of two groups given special treatment for the experimental group and a control group without special treatment. This study begins with a pre-test and ends with a post-test. According to (Sufriyanto, 2019) 'Groups are given an initial test, then given a treatment, and given a final test to determine whether there is an effect of the independent variable on the dependent variable'. Treatment was carried out in 16 meetings, 1 week There were 3 meetings which began with a pretest at meeting 1 and ended with a posttest at meeting 16, this treatment process was adopted from research (Alfatah, 2019) which explains that 'athletes should practice 2-5 times a week, depending on the level of involvement in the sport'. Then to see the effect of training. From this statement, it can be concluded that the effect of a treatment can be seen after two or three weeks of training to see the medium-term effects. The author chose this method because the author wants to trial a mental training treatment in this case imagery training to increase athlete confidence in the pencak silat sparring category.

The research design used is a nonequivalent control group design because the author wants to see the effect of the independent variable on the dependent variable. According to (Sugiono, 2016) 'This design has a pretest, before being given treatment carried out on 2 groups, namely the experimental group and the control group or comparison group, and the sample is not randomly selected'. Thus the results of the treatment can be known more accurately because it can compare with the situation before being treated in the experimental group and in the control group. Population is a group of people or subjects who occupy a place. According to (Thacker, 2020) 'Population can also be called a group of people with group characteristics'. The population used in this study are pencak silat athletes who are members of the Gerak Raga Buana (GERANA) silat club located in Rancaekek, Bandung Regency. The reason the author chose this population is because the author saw directly during the spartan red championship held at UPI, that athletes from the club tend to lack confidence as evidenced when dealing with opponents who have more flying hours than these athletes. Athletes look less focused, poor appearance, until in the end they are unable to continue the match until the end. The sample is part of the population or representative of a group as stated by (Martínez-Mesa et al., 2016) that the sample is a part or representative selected from the population. The sample used in this study was 16 athletes out of 20 total athletes who are members of the Gerana club. The number of experimental groups was 8 athletes and controls were 8 athletes. Sampling technique according to (Creswell, 2018) is a sampling technique used to determine the sample in the study. The sampling technique used in this study is purposive sampling, purposive sampling technique is to take part of the population into a sample with certain criteria. According to (Sugiono, 2016) 'purposive sampling technique is a sampling technique with certain considerations'.

The instrument used in this study is the SSCI (State Sport-Confidence Inventory) instrument adopted from (Vealey, 1986) research (Heydari et al., 2018) consisting of 13 items arranged to determine athlete self-confidence. The response expected to be given by the subject is the level of agreement or disagreement in levels 1, 2, 3 low category, 4, 5, 6 medium category, and 7, 8, 9 high category. The treatment lasted for 16 meetings 3 times a week starting with the pre-test at meeting 1 and the post-test at meeting 16 and when practicing it was given 20 minutes (Nakhafi, 2023). Then strengthened by previous research (Alfatah, 2019) which explains that 'athletes should practice 2-5 times a week, depending on the

level of involvement in the sport'. Then to see the effect of training. From this statement, it can be concluded that the effect of training can be seen or observed after two or three weeks of training to see the medium-term effects.

SPSS is software that is capable of statistical analysis and data processing. SPSS is a very important software application for processing, presenting, and analyzing data so this SPSS application is considered to be able to facilitate research or matters related to data presentation, processing, and analysis. Data normality testing uses Shapiro-Wilk tests of normality because the data used in this study are < 50 respondents. According to (Agustin et al., 2020) The Shapiro-Wilk - Wilk normality test is a test conducted to determine the distribution of random data of a small sample used to simulate data that is not more than 50 samples'. This test is used for samples of less than 50 samples with a probability> 0.05 then the distribution of the population is normal, if the probability <0.05 then the population is not normally distributed.

Homogeneous test is used to determine or manage the character of each group rather than the sample whether homogeneous or not. According to (Faradiba, 2020) 'Homogeneity test is carried out to determine whether the indicators of the research subject have a homogeneous character or not, the data can be said to be homogeneous if the significance is more than> 0.05. Hypothesis testing using the Paired Sample t-Test, Paired-Sample t-Test is an analysis involving two measurements on the same subject against a certain influence or treatment. According to (Faradiba, 2020) 'If a treatment has no effect, then the average difference is zero'. The basis for decision-making in the Paired Sample t-test test is if the Sig value. (2-tailed) <0.05, then there is a significant difference while if the Sig value. (2-tailed) > 0.05, then there is no significant difference. To determine the difference in the effect of the two groups the authors used the independent sample t-test test. According to (Faradiba, 2020) 'The Independent-Sample T-test is used to test the significance of the difference between the means of two groups. This test is used to test the effect of the independent variable on the dependent variable'.

The hypothesis guidelines in the independent sample t-test test based on the significance value with the help of SPSS software version 26 are if the Sig. (2-tailed) <0.05, then Ho is rejected and H1 is accepted, meaning that there is a significant effect of mental imagery training on the confidence of sparring category Pencak Silat athletes. Conversely, if the Sig value. (2-tailed) > 0.05, then Ho is accepted and H1 is rejected, which means there is no significant effect of mental imagery training on the confidence of sparring category Pencak Silat athletes.

Result

The initial test data is an attempt to find out or measure the level of confidence of the sample before being given treatment, while the final test is intended to measure the level of confidence of the sample or athlete after being given different treatments. The results of the data collected from the pretest and posttest that were processed by each group can be observed in Table 1. for the experimental group.

Table 1. Experimental Group Pre-Test and Post-Test Results

No.	Sample	Pre-Test	Categories	Post-Test	Categories	Difference
1	E1	71	Medium	93	High	22
2	E2	67	Medium	94	High	27
3	E3	89	High	105	Very High	16
4	E4	80	High	90	High	10
5	E5	76	High	82	High	6
6	E6	60	Medium	75	High	15
7	E7	82	High	88	High	6
8	E8	82	High	91	High	9

In Table 1, it can be seen that the overall post-test results are in the high category, even for sample E3, the results or category are very high. Therefore, the number of experimental samples in the high category was 7 samples and 1 sample was in the very high category after being given a treatment in the form of mental imagery exercises.

Table 2. Control Group Pre-Test and Post-Test Results

No.	Sample	Pre-Test	Categories	Post-Test	Categories	Difference
1	K1	34	Low	48	Low	14
2	K2	80	High	85	High	5
3	K3	56	Medium	58	Medium	2
4	K4	65	Medium	67	Medium	2
5	K5	48	Low	58	Medium	10
6	K6	82	High	86	High	4
7	K7	55	Medium	61	Medium	6
8	K8	70	Medium	71	Medium	1

In Table 2 it can be seen that the overall average post-test results are in the medium category, there are also high categories, namely K2 and K6, and the low category K1. Therefore, the number of samples in the low category is 1 sample, a medium category is 5, and the high is 2 samples after doing conventional training.

Data was collected through a manual measurement process using Microsoft Excel. The data collected is still raw data so data processing is needed to become definite data that can show the final results of this study, then it will be processed and analyzed using a statistical approach, and data analysis is carried out with the help of statistical applications, namely Statistical Product and Service Solutions (SPSS) version 26. The measurement data can be seen in Table 3.

Table 3. Description Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
PreEksperiment	8	60	89	75.88	9.403
PostEksperiment	8	75	105	89.75	8.812
PreControl	8	34	82	61.25	16.290
PostControl	8	48	86	66.75	13.414

In Table 3 it can be seen that the initial test in the experimental group obtained an average value of 75.88, a standard deviation of 9.403, the lowest value was 60, and the highest value was 89. While in the final test obtained an average value of 89.75, a standard deviation of 8.812, a lowest value was 75, a highest value was 105. Furthermore, the initial test in the control group obtained an average value of 61.25, a standard deviation of 16.290, the lowest value was 34, the highest value was 82. While the final test obtained an average value of 66.75, a standard deviation of 13.414, the lowest value was 48, and the highest value was 86. It can be seen that there are differences in the data obtained from each group in this study. Furthermore, the authors conducted a normality test as a further step to obtain the final hypothesis of this study.

Table 4. Saphiro-Wilk Normality Test

	Statistic	df	Sig.
PreEksperiment	0.965	8	0.860
PostEksperiment	0.963	8	0.840
PreControl	0.963	8	0.841
PostControl	0.926	8	0.479

Table 4 shows the results of the data normality test using the Shapiro-Wilk Test. It can be seen that in the initial test, the experimental group obtained a statistical value of 0.965, df 8, and Sig. of 0.860. In the final test, a statistical value of 0.963, df 8, and Sig. were obtained, respectively, of 0.840. Furthermore, in the initial test, the control group obtained a statistical value of 0.963, df 8, and Sig. 0.841. In the final test, a statistical value of 0.926, df 8, and Sig were obtained. 0.479. Based on the test results, both group data obtained a Sig. > 0.05 so that both data are declared 'Normal Distribution'.

Table 5. Levene Statistic Homogeneity Test

	Levene Statistic	df1	df2	Sig.
Based on Mean	1.759	1	14	0.206
Based on Median	1.625	1	14	0.223
Based on the Median and with adjusted df	1.625	1	13.145	0.225
Based on trimmed Mean	1.755	1	14	0.206

Based on table 5, the sig value (0.206) > 0.05 is obtained, then Ho is accepted, so it can be concluded that the experimental group data and control group posttest data are homogeneous.

Table 6. Paired Sample t-test

		t	df	Sig. (2-tailed)
Pair 1	PreEksperiment-PostEksperiment	5.148	7	0.001
Pair 2	PreControl-PostControl	3.479	7	0.010

Table 6 shows the results of hypothesis testing using a Paired Sample t-Test. It can be seen that the experimental group has a t value of 5.148 with a Sig value. (2-tailed) of 0.001. Furthermore, the control group has a t value of 3.479 with a Sig value. (2-tailed) of 0.010. Based on the test results, the Sig. (2-tailed) of both groups <0.05 so that H0 is rejected. So it can be stated that there is a significant effect of the application of mental imagery training on the confidence of sparring category Pencak Silat athletes and there is a significant effect of the application of conventional mental training on the confidence of sparring category Pencak Silat athletes. However, when viewed from the Sig value. (2-tailed) value obtained from mental imagery training has a more significant percentage of influence than conventional training.

Table 7. Independent Sample t-test

Group	Mean	t	Sig. (2-tailed)
Experiment	89,75	4.053	0.001
Control	66,75	4.053	

Based on Table 7, the sig value (<.001) <0.05 is obtained, so it can be concluded that there is a significant difference between mental imagery training and conventional training on the confidence of martial arts athletes in the competitive category.

Discussion

The results of the pretest and posttest apart from the statistical test results, the increase in self-confidence can also be noted from the average results of the pretest and posttest which have increased and there is a difference between the initial test and the final test, the results of data processing show a significant effect on the self-confidence of sparring category Pencak Silat athletes, therefore the understanding that can be taken is that there is a significant effect of mental imagery training on the self-confidence of sparring category Pencak Silat athletes. The results of this study are by the research (Roberts, 2011) that imagery training is proven to increase athletes' confidence in sports. reinforced by (Xie et al., 2021) "Imagery allows a person to utilize the power of the mind to increase self-confidence, and achieve better results in sports". This is because self-confidence is an important thing in overcoming various obstacles and in achieving an achievement or success. According to (Aguss & Fahrizqi, 2020) 'The sport of pencak silat, both in the sparring category and the art category, requires very high self-confidence.

In this study, the control group performed conventional training, namely applying relaxation exercises that were routinely carried out at each training session. This relaxation is done in general, namely by adjusting the breathing as best as possible and calming the mind to get calm. The test results after being

analyzed and processed that the control group who did conventional training in the form of relaxation influenced the confidence of sparring category Pencak Silat athletes. The author concludes that relaxation can affect appearance, and every appearance requires good self-confidence. Therefore, relaxation affects self-confidence, because, with the calmness that results from relaxation, athletes can manage their emotions, focus, and be able to overcome stress. If an athlete is stressed, and tense, and there is no strategy to prepare mentally, then a person's confidence, or in this case an athlete, will be difficult to emerge and increase properly especially when facing challenges. Referring to research (Sin, 2016) which states that 'Relaxation is a mental preparation strategy to overcome stress and tension in athletes that arise during competition. In this way, it is expected to positively affect the athlete's performance and achievements.

The results of data processing showed a significant difference between the experimental group who did mental imagery training and the control group who did conventional training, whereas the experimental group who did imagery training had a significant effect on the confidence of sparring category Pencak Silat athletes. Furthermore, for the control group, it also influences the confidence of sparring category Pencak Silat athletes. The author finds the results of the two treatments given to the sample, both influence self-confidence. However, when viewed from the results of data processing from both groups, the experimental group has a more significant influence on athlete confidence than the conventional training method carried out by the control group. Therefore, this study hypothesizes that mental imagery training has a significant effect on the confidence of sparring category Pencak Silat athletes compared to conventional training methods that have been carried out regularly.

Referring to previous research conducted by (Saefullah & Setyawati, 2021) there is a significant difference in the influence of the experimental group given special treatment with the control group doing conventional training where imagery training has a greater influence than conventional training. Reinforced by (Sufriyanto, 2019) with the title The Effect of Mental Imagery Training on the Confidence of Kerinci District Football Athletes. Mental imagery training can increase athletes' confidence. This mental imagery exercise has a more significant effect compared to conventional exercises performed by the control group. This is very necessary for every athlete because with confidence an athlete will be able to face various challenges in the match even if drawn to a more general thing will be able to solve problems with good and correct solutions and be able to face various challenges in life. Self-confidence is a very important factor for every person to have, according to (Nisa & Jannah, 2021) 'an athlete with low self-confidence will easily experience anxiety and even failure in achieving success.' Then according to (Thomas et al., 2011) 'self-confidence is a set of positive beliefs that can be trained and serves to protect against various psychological challenges in a match'. Therefore, self-confidence is something that every individual has and plays an important role in every life process, someone who has good self-confidence, will make that individual able to achieve what he wants through various ways or efforts made. On the contrary, individuals who have low self-confidence will become less empowered, inhibit what they want to achieve, and are prone to excessive stress, anxiety, and fear.

Conclusion

Based on the research results and data analysis, the author can draw the conclusion that mental imagery training has a more significant influence on the self-confidence of Pencak Silat athletes in the sparring category compared to conventional training.

References

Agus Sufriyanto, Y. Y. P. (2019). Pengaruh Latihan Imagery Mental Terhadap Kepercayaan Diri Atlet Sepak Bola Kabupaten Kerinci. *Jurnal Riset Psikologi*, *0*(3), 1–12.

Aguss, R. M., & Fahrizqi, E. B. (2020). Analisis Tingkat Kepercayaan Diri Saat Bertanding Atlet Pencak Silat Perguruan Satria Sejati. *Multilateral Jurnal Pendidikan Jasmani Dan Olahraga*, *19*(2), 164. https://doi.org/10.20527/multilateral.v19i2.9117

Alfatah, A. A. (2019). Pengaruh Metode Latihan Imagery Terhadap Self- Confidence Atlet Futsal UPI.

Creswell, J. W. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. In *Sage Publication*. Sage Publication. https://doi.org/10.4324/9780429469237-3

Faradiba. (2020). Penggunaan Aplikasi Spss Untuk Analisis Statistika Program. *SEJ (School Education*

Journal, *10*(1), 65–73.

Hanton, S., Mellalieu, S. D., & Hall, R. (2004). Self-confidence and anxiety interpretation: A qualitative investigation. *Psychology of Sport and Exercise*, *5*(4), 477–495. https://doi.org/10.1016/S1469-0292(03)00040-2

Heydari, A., Soltani, H., & Mohammadi-Nezhad, M. (2018). The effect of Psychological skills training (goal setting, positive selftalk and Imagery) on self-confidence of adolescent volleyball players. *Pedagogics, Psychology, Medical-Biological Problems of Physical Training and Sports*, *22*(4), 189. https://doi.org/10.15561/18189172.2018.0404

IPSI, M. (2012). Peraturan Pertandingan Ikatan Pencak Silat Indonesia. *Angewandte Chemie International Edition, 6(11), 951–952.*, 5–24.

Juriana, J., & Tahki, K. (2017). Peran Pelatihan Mental Dalam Meningkatkan Kepercayaan Diri Atlet Renang Sekolah Ragunan. *JOSSAE : Journal of Sport Science and Education*, *2*(1), 9. https://doi.org/10.26740/jossae.v2n1.p9-14

Komarudin. (2016). *Psikologi Olahraga*. PT. Remaja Rosdakarya.

Martínez-Mesa, J., González-Chica, D. A., Duquia, R. P., Bonamigo, R. R., & Bastos, J. L. (2016). Sampling: How to select participants in my research study? *Anais Brasileiros de Dermatologia*, *91*(3), 326–330. https://doi.org/10.1590/abd1806-4841.20165254

Nakhafi, R. N. (2023). Pengaruh Imagery Training Terhadap Tingkat Kepercayaan Diri Atlet Kyorugi Cabang Olahraga Taekwondo Dojang The Master Taekwondo Club. In *https://eprints.uny.ac.id*.

Nisa, K., & Jannah, M. (2021). Pengaruh Kepercayaan Diri Terhadap Ketangguhan Mental Atlet Bela Diri. *Character: Jurnal Penelitian Psikologi*, *8*(3), 36–45.

Nopiyanto, Y. E., Alexon, A., Raibowo, S., Prabowo, A., Ilahi, B. R., & Widodo, L. (2022). Pengaruh Latihan Imagery terhadap Kepercayaan Diri Atlet. *Jurnal Patriot*, *4*(1), 48–57. https://doi.org/10.24036/patriot.v4i1.834

Pendidikan, P., Kompensasi, D. A. N., Kinerja, T., Agustin, P., & Permatasari, I. (2020). Pengaruh Pendidikan dan Kompensasi Terhadap Kinerja Divisi *New Product Develpoment (NPD)* Pada PT. MAYORA INDAH Tbk. *Jurnal Ilmiah M-Progress*, *10*(2), 174–184. https://doi.org/10.35968/m-pu.v10i2.442

Roberts, S. M. (2011). *The Impact of Mental Imagery on the Confidence of Student-Athletes*.

Saefullah, & Setyawati, H. (2021). Pengaruh Latihan Konvensional dan Imagery Terhadap Latihan Tendangan Sabit Atlet Kategori Tanding di Perguruan Silat Asad Kabupaten Wonosobo. *Indonesian Journal for Physical Education and Sport*, *3*(2), 69–76.

Sin, T. H. (2016). Persiapan *Mental Training* Atlet Dalam Menghadaoi Pertandingan. Universitas Negeri Padang (FIK ± UNP) 61. *Jurnal Performa Olahraga*, *1*(1), 61–73.

Sugiono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D* (Issue April).

Thacker, L. R. (2020). What Is the Big Deal About Populations in Research? *Progress in Transplantation*, *30*(1), 3. https://doi.org/10.1177/1526924819893795

Thomas, O., Lane, A., & Kingston, K. (2011). Defining and Contextualizing Robust Sport-Confidence. *Journal of Applied Sport Psychology*, *23*(2), 189–208. https://doi.org/10.1080/10413200.2011.559519

Vealey, R. S. (1986). Conceptualization of Sport-Confidence and Competitive Orientation: Preliminary Investigation and Instrument Development. *Journal of Sport Psychology*, *8*(3), 221–246. https://doi.org/10.1123/jsp.8.3.221

Xie, J., Chen, G., & Liu, S. (2021). Intelligent Badminton Training Robot in Athlete Injury Prevention Under Machine Learning. *Frontiers in Neurorobotics*, *15*(March), 1–9. https://doi.org/10.3389/fnbot.2021.621196