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The Effect of Meditation Training on Increasing Concentration in Indonesian Kempo Federation Athletes at Graha BSS Narmada

Elya Wibawa Syarifoeddin[1] , I Nyoman Sukartidana[2] , Niqsanding Sanrijaya[3]
[1,2,3] Pendidikan Jasmani, Universitas Pendidikan Mandalika

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Abstract
Concentration is a vital aspect of martial arts such as Kempo, which requires quick responses, technical precision, and mental composure. Based on observations and interviews with coaches and athletes from the Indonesian Kempo Federation at Graha BSS, Narmada, a problem of low concentration levels was identified, which affects the athletes' performance and achievement. Therefore, this study was conducted to examine the effect of meditation training on improving athletes'concentration. The research employed a quantitative approach with a one-group pretest-posttest experimental design, without a comparison group. The population consisted of 30 athletes, with a sample of 20 athletes selected using purposive sampling based on specific criteria. Meditation sessions were conducted over a onemonth period, totaling 12 meetings with a frequency of three sessions per week. The instrument used was the Concentration Grid Test (CGT), a measurement tool proven to be valid and reliable. Data collection techniques included documentation and performance-based testing to assess concentration levels before and after the intervention. The data were processed through editing, coding, saving, tabulating, and cleaning, and then analyzed using parametric statistics, including normality tests (Kolmogorov-Smirnov and Shapiro-Wilk), a homogeneity test (Levene's Test), and hypothesis testing using the paired samples t-test. The findings showed an increase in the average concentration score from 9.45 (pre-test) to 15.15 (posttest), with a mean difference of 5.7 points. The t-test resulted in a significance value of 0.001 (< 0.05), indicating a statistically significant difference, meaning meditation training had a positive effect on the athletes' concentration. Therefore, it can be concluded that "Meditation training has a positive influence on improving the concentration of athletes in the Indonesian Kempo Federation at Graha BSS, Narmada.

Corresponding Author:
Elya Wibawa Syarifoeddin
UNDIKMA
elyawibawa@undikma.ac.id[1]

1. INTRODUCTION

The Indonesian Kempo Federation (FKI) is a national organization for the Shorinji Kempo martial art, which prioritizes self-development, health, and achievement based on a non-violent philosophy. Established in 2018 as the Indonesian Kempo Sports Association (PORKEMI), the organization was renamed FKI in 2021. It is under the auspices of the Indonesian Olympic Committee and is a member of the International Kempo Association and the International Kempo Federation. Kempo, a Japanese martial art, embraces the philosophy of "body and mind are an inseparable whole" (shinshin ichinyo) and "training the body and mind" (kenzen ichinyo), aiming to develop warriors who are physically and mentally resilient (Hanif, 2017:1). Through hard techniques such as punches and kicks (Goho) and soft techniques such as evasions and locks (Juho), Kempo

emphasizes a balance between physical performance and psychological stability as the primary foundation of every training session and competition.

One key factor in achieving optimal performance in Kempo is the ability to concentrate. Concentration in this context refers not only to focus during a match, but also to the mental endurance to maintain focus for a certain period of time and ignore both internal and external distractions. According to Nusufi (2016), concentration is the ability to focus attention without being distracted by internal stimuli, such as anxiety, or external stimuli, such as noise. Jannah (2017:54) emphasizes that concentration in sports has four main characteristics: selective attention, sustained focus, situational awareness, and the ability to strengthen focus when needed. Lack of concentration risks reducing technical quality, leading to strategic errors, and weakening an athlete's response to rapidly changing competitive situations.

However, in training practice, the concentration aspect often doesn't receive adequate attention. Coaches tend to focus on technical development and improving physical condition, while developing psychological aspects such as mental focus remains marginalized. Komarudin (2017:49) emphasizes that attention and concentration are essential foundations for developing emotional stability and clarity of thought during competition. The ability to stay "tuned in" to relevant stimuli and "tuned out" of distractions is an indicator of an athlete's psychological readiness. Without structured concentration training, athletes' potential will be hampered and they will be unable to consistently achieve maximum performance.

Meditation is a mental training method proven effective in improving athletes' concentration, particularly in Kempo, a martial art that requires calm, sharp focus, and emotional control. Meditation practices involve systematic steps such as breathing regulation, vocalization, and thought management, aimed at shifting brain activity from beta waves to alpha and theta waves, creating a state of active relaxation that supports increased awareness and focus (Krishna, 1998). Jannah (2016) emphasizes that through contemplation of the pulse and the integration of the five senses, athletes can align their perception of the body and the environment, manage emotional intensity, and minimize distractions during competition. Meditation also serves as a means of reprogramming the mind through positive affirmations and visualizations, which foster self-confidence and mental readiness to face the pressures of competition (Ongko & Jannah, 2016). The physiological effects of meditation also support athlete performance, as this process reduces frontal and parietal lobe activity and strengthens the function of the thalamus and reticular formation in filtering irrelevant sensory information (Yunus, 2014), enabling athletes to maintain optimal concentration. With this combination of psychological and neurological benefits, meditation can be integrated as a holistic strategy in athlete development to improve consistency and sustainable mental toughness.

The effectiveness of meditation training in improving athletes' concentration has been empirically proven by various studies supporting the theoretical basis and practical application of the method. Puspaningrum (2013), in her study of Kei Shin Kan karate athletes from Bandung, found that structured autogenic meditation training significantly improved concentration during training, as evidenced by the difference in scores before and after the intervention. This meditation approach focuses on achieving a state of relaxation through breathing techniques and autosuggestion, thereby strengthening athletes' focus during training. Research by Ifandi and Verawati (2021) also showed consistent results, with concentration scores increasing from 8.67 to 11.67 in members of the Garuda Sakti Pencak Silat Club after three weeks of meditation training. This statistically significant difference of 3.00 points indicates that meditation has a significant impact on the ability to focus attention for a limited time. Furthermore, Nurhuda and Jannah (2018) examined the effect of mindfulness meditation on the mental toughness of 400-meter sprint athletes and found a significance value of 0.011 ($p < 0.05$), indicating that meditation not only impacts concentration but also mental toughness and psychological preparedness in facing competitive pressure. These three studies strengthen the argument that meditation training is an effective and relevant psychological intervention for various martial arts.

Within the Indonesian Kempo Federation at Graha BSS, Narmada, observations and interviews indicate that athletes frequently experience decreased concentration, both during training sessions and during formal competitions. This decreased concentration is closely related to mental stress due to performance demands, repeated physical fatigue, and psychological disorders such as anxiety and competitive stress. Komarudin (2017) explains that concentration is greatly influenced by internal factors such as negative thoughts, low motivation, and physiological disorders, as well as external factors such as noise and pressure from opponents. Inability to manage concentration will directly impact the execution of techniques and strategies competition. Based on this background, this study was designed to provide a scientific solution by testing the effect of meditation training on improving the concentration of Kempo athletes. Using a quantitative approach through a quasi-experimental method, a one-group pretest-posttest design was deemed appropriate because it allowed for direct measurement of changes occurring in the same group of subjects before and after treatment. The instrument used was the Grid Concentration Exercise, as developed by Harris & Harris (1984), Marten (1933), and Heinen (2011), which has a high level of reliability in measuring visual concentration and attention stability over a short period of time.

The contribution of this research is expected to provide a new theoretical basis and enrich studies in the field of sports psychology, particularly regarding mental interventions in the development of martial arts athletes. Theoretically, the application of meditation in training can be interpreted as a form of strengthening the brain's executive function, which regulates attention, self-control, and efficient information processing, as explained in Yunus's brainwave frequency theory (2014). Furthermore, the practical contribution of this research is highly relevant for coaches and managers of athlete training programs, which have traditionally focused more on physical and technical improvement. By incorporating meditation practice into the training curriculum, training can become more comprehensive and based on a balance between the physical, mental, and spiritual. According to Sukadiyanto and Muluk (2011) state that a training program that is conducted in a focused, systematic, and progressive manner, while also considering the principles of adaptation and individualization, will result in optimal and long-lasting performance development. Therefore, integrating meditation as a mental strategy not only temporarily improves an athlete's concentration but also builds the long-term mental resilience necessary to cope with the pressures of competition and maintain performance under various conditions.

2. METHOD

The research method used in this study is quantitative research with an experimental approach. The research design used is an experiment using the principle of a one-group pretest and posttest design.

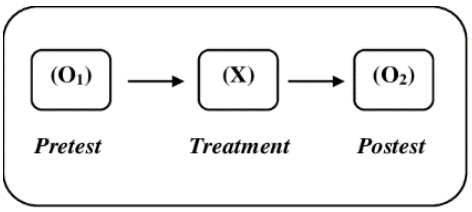

Figure 1. One-group pretest-posttest design.
(Source: Wulandari, 2022)

In research using the experimental method, experimental activities with treatments must be conducted to determine the results of the influence of the variables being studied. The population and sample in this study were 20 athletes from the Indonesian Kempo Federation from Graha BSS, Narmada. The sampling technique used was purposive sampling, a sampling technique carried out with certain considerations, where the researcher selected the sample based on criteria or characteristics deemed relevant to the research objectives (Sugiyono, 2019:133). The sample size in

this study was 20 athletes, while the instrument used was the Grid Concentration Exercise or Concentration Grid Test (CGT), developed by Harris & Harris (1894), Marten (1933), and Heinen (2011), which aims to measure concentration.

84	27	51	78	59	52	13	85	61	55
28	60	92	04	97	90	31	57	29	93
32	96	65	39	80	77	49	86	18	70
76	87	71	95	98	81	01	46	88	00
48	82	89	47	35	17	10	42	62	34
44	67	93	11	07	43	72	94	69	56
53	79	05	22	54	74	58	14	91	02
06	68	99	75	26	15	41	66	20	40
50	09	64	08	38	30	36	45	83	24
03	73	21	23	16	37	25	19	12	63

Figure 2. Grid Concentration Exercise Test
(Source: Leisure Press 1984:2)

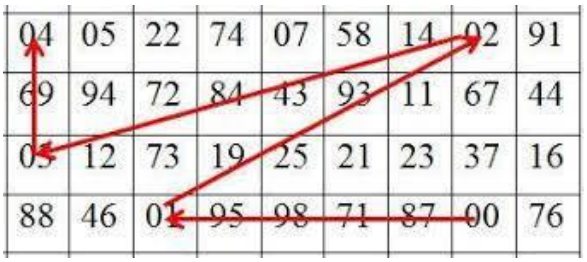

Figure 3. Example of Filling in the Concentration Exercise Grid
(Source: Leisure Press 1984:2)

Table 1. Grid Concentration Exercise Assessment Criteria

No	Criteria	Category	Mark
1	21 – to the top	Very Good Concentration	A
2	16 – 20	Good Concentration	B
3	11 – 15	Medium Concentration	C
4	6 – 10	Lack of Concentration	D
5	5 – Down	Very Poor Concentration	E

To conduct the initial test, a pre-test, to collect initial data on sample concentration levels using a grid concentration test. This test requires a table containing 100 boxes containing numbers ranging from 00 to 99 in random order. The samples were collected together in the experimental group, separated by a distance of one meter. The instructions given were to check the numbers sequentially or in an ordered manner from 0 to 99, within one minute. The samples were simply required to check the boxes they found sequentially, within a time limit of one minute (60 seconds). The test score was determined by the number of boxes they successfully found in order and in the correct order. I will shorten this explanation to one paragraph, without losing the essence of the explanation.

The data collection techniques used in this study were behavioral tests and documentation. The data analysis techniques used were SPSS 31, which included data normality tests, homogeneity tests, and paired sample tests.

3. RESULTS AND DISCUSSION

This study aimed to determine the effect of meditation training on improving concentration in Indonesian Kempo Federation athletes at Graha BSS, Narmada. Data collection was conducted in two stages: a pre-test and a post-test after the athletes participated in a one-month meditation training program consisting of 12 sessions.

Table 2. Descriptive Statistics of Pre-test and Post-test

Descriptive Statistics					
	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Pre-test	20	5	15	9.45	3.410
Post-test	20	9	22	15.15	3.774
Valid N (*listwise*)	20				

The results of the concentration measurement using the grid concentration exercise showed a significant increase in scores between the pre-test and post-test. The average pre-test score was 9.45 with a standard deviation of 3.410, while the post-test score increased to 15.15 with a standard deviation of 3.774. Almost all participants experienced an increase in scores, as indicated by individual differences ranging from 4 to 7 points.

Table 3. Normality test results

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PRETEST KONSENTRASI	.144	20	.200*	.916	20	.085
POSTTEST KONSENTRASI	.114	20	.200*	.964	20	.616

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

A normality test was conducted to ensure that the pre-test and post-test concentration data were normally distributed. Using the Shapiro-Wilk method, a significance value of 0.085 was obtained for the pre-test and 0.616 for the post-test, both of which were greater than $\alpha = 0.05$. These results indicate that the data distribution from both groups was normal, thus meeting the requirements for further analysis using parametric statistical tests.

Tabel 3. Hasil uji Homogenitas

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
POSTTEST KONSENTRASI	Based on Mean	1.090	5	9	.428
	Based on Median	.327	5	9	.884
	Based on Median and with adjusted df	.327	5	3.457	.872
	Based on trimmed mean	1.018	5	9	.461

The homogeneity test aims to determine whether the variance between pre-test and post-test data is uniform. Based on the results of Levene's Test, a significance value of 0.428 (>0.05) was obtained, indicating that the data have homogeneous variance. Thus, it can be concluded that the data characteristics between groups are comparable and meet the assumption of equal variance in subsequent statistical tests.

Table 3 T-Test Results

Paired Samples Test

		Paired Differences					t	df	Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			One-Sided p	Two-Sided p
Pair 1	PRETEST KONSENTRASI - POSTTEST KONSENTRASI	-5.700	.979	.219	-6.158	-5.242	-26.045	19	<,001	<,001

Based on the results of the data analysis in the table above, it is known that the results of the analysis show a t-value of -26.045 with a significance of 0.001 (<0.05), which means there is a significant difference between the pre-test and post-test values. Thus, it can be concluded that meditation practice has a significant effect on increasing concentration in the Indonesian Kempo Federation athlete Graha BSS, Narmada.

The results of this study indicate that meditation training plays a significant role in improving the concentration of Indonesian Kempo Federation athletes at Graha BSS, Narmada. The increase in the average concentration score from 9.45 in the pre-test to 15.15 in the post-test indicates an improvement in focus ability after participating in a one-month meditation program. The meditation training consisted of breathing techniques, muscle relaxation, and concentration, which are believed to strengthen cognitive control mechanisms and reduce internal and external distractions. These results align with previous research that states that meditation is effective in stabilizing psychological conditions and increasing mental resilience in sports activities that require high levels of focus, such as Kempo.

Furthermore, statistical analysis showed that the data were normally distributed and homogeneous, and there was a significant difference between pre-test and post-test scores based on a paired t-test. These results reinforce the finding that the changes occurred were not coincidental, but rather the result of a systematically designed meditation training intervention. The relatively large standard deviations in both stages indicate individual variation in response to the treatment, which could be caused by differences in personal characteristics such as motivation level, previous meditation experience, or psychological state at the time of the training. Therefore, although meditation training is generally effective, a personalized approach to implementation should be considered in the design of future coaching programs.

Theoretically and practically, the results of this study reinforce the importance of mental training in developing optimal athletic performance. In the context of competitive sports, concentration is not only part of mental readiness but also a crucial element in decision-making and quick reactions on the field. Meditation, as a non-physical technique, has been shown to support psychomotor aspects by improving focus and self-control. These findings open up opportunities for integrating meditation training into athlete development curricula and provide a foundation for further research exploring the effectiveness of other mental techniques such as visualization, mindfulness, or progressive relaxation training in supporting overall athletic performance.

4. CONCLUSION

Based on the research results obtained through data analysis and hypothesis testing, it can be concluded that meditation training has an impact on improving concentration in Indonesian Kempo Federation athletes at Graha BSS, Narmada.

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