

# Optimization of Pencak Silat Athletes Coordination Through Brain Jogging

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**Abstract.** Brain jogging is a model of mental exercise which combines motion with exercises the brain, which is in the process exercise more emphasis to coordination senses motion. In the branch of Pencak Silat one major factor is the successful athletes have someone coordinating a quick motion, either in deciding an assault or dodge. This research aims to know the influence of training on brain jogging towards improved coordination of Pencak Silat athletes. The methods used in this research are a method of experimentation. Population and sample was pelatda pencak silat athletes of West Java with a population of 22 people. Experimental group will be given training in the treatment of brain jogging. The design used in this research is the design of the one-group pretest-posttest design. As for the results of the research is to increase coordination of brain jogging training athletes Pencak Silat, when doing the attack and avoid the opponent's attack has increased significantly. The conclusion of this research is the sport of martial arts that require coordination in his movement, requiring training brain jogging.

## 1. Pendahuluan

Brain jogging training is a mental training model that combines movement and brain training, which is categorized new in Indonesia. At the first time, this training model developed in Germany and used to train professional athlete. Brain jogging training is an innovative training technique and exclusively designed to improve cognition or *Cognitive Training* [1]. In the cognitive domain training comprised working memory training [2], *multitasking* [3]. Concentration so that someone can develop the resource (brain) and all potential he has as much as possible. Training studies can roughly be subdivided into motor and cognitive interventions. Motor training varied from joystick tracking tasks [4].

Brain jogging training basically is a combination of three important elements such as training of *cognition* [1], *multitasking*, [3], and *physical activity*. This training aims to stimulate the system of the brain in such a way to improve cognitive power, senses, and mental through fun methods that combines unusual movement coordination. It developed a multimodal training that combines coordinative, cognitive, and visual tasks in a way that the physical exercise is performed while participants are cognitively challenge at the same time [5]. Precisely, the aims to achieve from brain jogging training is improving concentration, motivation, intelligence, multitasking (double task), memory and attention, resistancy towards stress, and fitness [6].

In martial arts, there are factors to support the achievements. There are many benefits to participation in the martial arts, such as the development of discipline, respect, strength, coordination, balance, and flexibility [7]. In *pencak silat*, one of the main factor to be a successful athlete is having a



fast movement coordination and anticipation, either in deciding the assault or dodge. Coordination is an ability to do various different movements in one movement pattern effectively. Coordination is a complex biomotoric ability [8]. In *pencak silat*, there are many forms that requires coordination of eye-hand and foot-eye [9]. A good *silat* athlete must have good coordinations in doing assault or to anticipate deffence.

Brain jogging technique is considered as a training model that fits to improve *pencak silat* athlete either from physical aspect, cognitive aspect, or mental aspects, bearing in mind that the movement coordination in *pencak silat* sport is complex. Therefore, through this training, athlete's performance will be build automatically. Brain jogging training mainly contains the combination of physical training such as coordination, agility, and balance with cognitive assignments which is able to develop concentration, focus, and mental that required in *pencak silat* sport.

## 2. Method

The method used in this research is experimental research with "one group pretest-posttest" design. The population in this research is 22 *pencak silat* athlete who trained in facing PON XIX West Java 2016. Sample of this research is taken by total sampling method in which the researcher took all 22 *pencak silat* athlete. The experimental group will be treated by brain jogging which conducted 12 meetings; it conected in two meetings in a week. The researcher used coordination reaction time instrumen to measuse coordination ability. To process the data analysis, the researcher only used T-Test as the formula to reveal corelation. To ease the data analysis in this research, researcher used SPSS 21 pogram for Windows [10].

## 3. Result and Discussion

### 3.1. Result

After the data from the sample known, the research furthermore analyse the obtained data. As for the examination result and statistical analysis, the data was calculated until it gained the mean value, standard deviation, and variance from the data resulted from coordination test of *pencak silat* athlete in Pelatda Pekan Olahraga Nasional XIX West Java, 2016. The result can be seen as follows:

**Table 1.** The Result of Calculation of Mean, Standard Deviation, and Variance

Name	Total ( $X_1$ )	Mean ( $\bar{X}$ )	Standard deviation (S)	Variance ( $S^2$ )
<b>Pre test</b>	22	0,518	0,051	0,002
<b>Post test</b>	22	0,417	0,027	0,001

From the Table.1 it can be seen that the result of the data analysis of coordination test achieved in pre test covers: mean score, standard deviation, and variance (0,518 ; 0,051 ; 0,002) and (0,417 ; 0,027 ; 0,001) for the results of the post test. After mean, standard deviation, and variance known, the researcher furthermore analyse the data using T-Test formula.

**Table 2.** Result of Corelation Calculation

		Pretest	Posttest
Pretest	Pearson Correlation	1	.706**
	Sig. (2-tailed)		.000
	N	22	22
Posttest	Pearson Correlation	.706**	1
	Sig. (2-tailed)	.000	
	N	22	22

\*\* . Correlation is significant at the 0.01 level (2-tailed).

From the calculation result, it can be seen in Table.2, in the calculation result of coordination test of *pencak silat* athlete, the result shows good significance with  $< \alpha 0,01$ . In other words, it can be concluded that there is a significance influence from brain jogging training towards *pencak silat* athlete in the preparation of Pekan Olahraga Nasional XIX West Java 2016.

### 3.2. Discussion

From the calculation result above, there is a significant influence from brain jogging training towards *pencak silat* athlete's coordination. And this result is in accordance to what has been stated previously that brain jogging developed a multimodal training that combines coordinative, cognitive, and visual tasks in a way that the physical exercise is performed while participants are cognitively challenge at the same time [11-18]. Brain jogging training is conceptually similar to life kinetic training which emphasize motoric and cognitive activity. Parts of body are forced to move in an unusual movement such as throwing, catching, turning the body, and doing the coordination of other movements that characterize braing jogging training itself.

"body coordination training gives a positive influence towards brain growing for both children and adults" [12]. Body coordination training is a training that involve complex movements, so that this training stimulate cells in hippocampus which all of this will result to improving someone's memory. If this training is given to the athletes since the early ages, so they will have a great ability in cognitive aspects and therefore benefits them in receiving information delivered by the trainers and will not encounter significance difficulties during the training process in the next level. Using Life Kinetic benefits health through a broad, tailored training program our brains function better through newly formed synapses. The method is suited both for children and elderly people, for Individual and team sports players [5]. Life Kineticc method shapes cortical representations of a higher level (the development of associative fields, improvement in nerve connections in the brain), allowing conscious execution of the movement, as opposed to mechanical execution [13].

Someone's level of coordination reflects in the ability in performing movements smoothly, precisely, and efficiently. A *pencak silat* athlete ought to have a smooth movement, precise, and efficient because the movement pattern in *pencak silat* forms constrain an athlete to have a various movements in both assault or dodge position. An athlete that has a good coordination movement will have a good speed in learning new movement pattern and will be able to modify or move precisely from one movement pattern to another movement pattern so that their movement will be effiecient. Tai Chi Chuan, commonly known as Tai Chi, is a typical example of mind body exercise; it is characterized by slow motion and emphasizes the conscious control of body movements, it requires less locomotive mobility and is deemed appropriate for most elderly people [14-15-16].

Skill can involve foot eye coordination or eye hand coordination, like throwing particular object. The frontal eye field (FEF), a brain region responsible for eye movement and gaze control, is known to be altered in the course of learning to handle moving objects [9-18], which is also part of the exercise, except that this is not trained to perfection like in juggling [17-18]. In *pencak silat*, it requires sometimes an overall coordination of the body like doing sweeping or beating, and then assault and defence which requires perfect consideration. Because *pencak silat* is an unpredicted and spontaneous movement and game, coordination of movements and coordination trainings is highly suggested to be implemented.

#### 4. Conclusion

From the result of the research, it can be concluded that brain jogging training influences the coordination especially for the skilled athlete. The improvement of coordination is highly significant. Through brain jogging training, although it only conducted in some meetings, the change is significant. If this training is conducted consistently, the best result of training is not impossible to achieve.

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