

The Influence of Brain Jogging Training Model and Intelligence Potential Level on the Improvement of Athlete Concentration in Basketball Sports

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Abstract: The purpose of this study was to determine the different results of high-intensity brain jogging training and low-intensity brain jogging training model for high-intelligence (IQ) and low-intelligence (IQ) potential groups to the increased concentration of athletes in basketball sports that experienced 2 meetings during 6 weeks. The method used experimental study with 2×2 factorial design. The data was analyzed with IBM SPSS 23rd version with two-way-anova hypothesis test. The analysis and data showed: (1) There was a difference of concentration result for athletes trained with high-intensity brain jogging and low-intensity brain jogging training model on the concentration improvement of Basketball athletes. (2) There was an interaction between the training model and the Intelligence (IQ) on the increased of Basketball Athlete concentration. (3) There was a difference in concentration results for athletes trained in high-intensity brain jogging and low-intensity brain jogging training models on high-intelligence (IQ) groups. (4) There was a difference in concentration results for athletes trained in high-intensity brain jogging and low-intensity brain jogging training models of low-intelligence (IQ) groups.

1 INTRODUCTION

Harsono (2016) explained the increase in muscle capacity that, "there will be changes in our muscles after training", which means that muscle can increased as their ability of training, so how the increased can happen with the human brain itself. This model of brain jogging training offers a special training that can train the human resource, the brain. Because according to Demirakca (2016) Brain jogging is "designed in such a way as to enhance cognition, concentration, motivation, and also as a method to stimulate the power of brain function". Next, the concept in brain jogging is different from other methods. Henryk (2015) in this case explained that "brain jogging can stimulate the brain's work system in such a way as to challenge the power of cognition, senses and mental with the concept of combining the 3 elements of training that is physical activity, multitasking, and cognition".

Based on the kinetic life source Lutz of North America (2017), it is understood that "life kinetic is a fun, active and scientifically designed training that helps us get closer to realizing our true capacity

brains possess", which means that, kinetic life is done with fun, active, and scientifically designed to help optimize our brain capacity.

While other sources are in Germany according to Grünke (2015) that the kinetic life is "*bestimmte coordinative Übungen beeinflussen die Hirnentwicklung bei Kindern sehr positiv. Auch bei Erwachsenen bewirken gewisse Bewegungstrainings die Bildung neuer Nervenzellen im Hippocampus, so dass man Gedächtnisinhalte besser abspeichern kann*", According to Hyatt (2007), on Brain jogging workshop in 2015, with brain jogging training, the practitioners of brain jogging or life kinetic raining will "improve the power of Concentration. Motivation, Creativity, Intelligent, Multitasking (multi tasks), Coordination (Resistance), Resistant to Stress, and Fitness (physical fitness)".

Several other sources, published by Luma Group on their official website, *Life Kinetik Nort America* (2016) described the benefits of: The benefits in brief; A) Children are more creative, b) Student are more focused, c) Professional are more stress resistant, d) Athletes perform at a higher level, e) Increased action and reaction speed, f) Error

reduction, g) Increase fluid intelligence (The ability to properly perform tasks), and h) Seniors are better able to navigate dangerous situations (reduced falls).

Several study results were conducted to determine the impact of brain jogging training, Komarudin and Mulyana (2017) with the title "The Effects of Brain Jogging Trainings Toward the Increase of Concentration and Learning Achievement" with a population of 30 tennis athletes and a sample of 10 athletes with the use of purposive sample techniques. Training experience were conducted 11 times with 1 times meeting in a week. The results of the study show that "there is a significant effect of brain jogging toward the increase of concentration and learning achievement".

Several other sources, published by the Luma Group on the *Life Kinetik North America* (2016) official website explain the benefits of: *The benefits in brief; a) Children are more creative, b) Student are more focused, c) Professional are more stress resistant, d) Athletes perform at a higher level, e) Increased action and reaction speed, f) Error reduction, g) Increase fluid intelligence (the ability to correctly perform tasks), and h) Seniors are better able to navigate dangerous situations (reduced falls).*

In addition, another study conducted by Fedrian (2015) in grade VIII in Junior High School class students with a sample of 29 people shows that, brain jogging in learning physical education in schools significantly affect the cognitive abilities of learners. Furthermore, the issue of brain jogging is often done in the environment of Koni West Java which is given in the development of martial arts sports such as karate and pencak silat and also in sports game.

2 METHODS

2.1 Participants

Twenty athletes of Bumi Siliwangi Women Basketball team with 2 meetings during 6 weeks.

2.2 Instruments

2.2.1 Advanced Progressive Matrices (APM)

The instrument was done to know the obtained score value until the qualifications of one's intelligence level as the intelligence ability (IQ) owned by each individual.

2.2.2 Concentration Grid Test (CGT)

To determine the level of potential ability of athlete's concentration, the researchers uses Concentration Grid Test (CGT) test equipment.

2.3 Tasks

The task in this study is a program namely brain jogging with high and low intensities using 8 training modules of brain jogging. The modules have been tested before and especially designed by trainers from brain jogging consisting of ladder A1-A4, ladder B1-B4, dst.

2.4 Procedures

(A) Preliminary study, conducting literature studies on relevant theories on study variables as well as training of brain jogging trainings, Intelligence Potential (IQ), and concentration; (B) Preparation of the Brain Jogging training program by conducting literature studies based on previous study; (C) Consultation with UPTLBK Indonesia University of Education, Bandung. Regarding the test standard for the IQ Advanced Progressive Matrices (APM), Potential IQ test that can be used in accordance with the study to be performed; (D) Consultation with the Coaching staff of the UPI Women's Basketball Team and previous brain jogging researchers regarding training time.

The Final Stage of this study is the completion stage of researchers in order to get the results of treatment that has been given as for its description that is; (A) Processing data from pretest and final test (posttest); (B) Analyze and discuss the study data; (C) Giving conclusions based on the results of data processing study; (D) Provide recommendations based on study results.

3 STUDY RESULTS

Further information obtained on the difference between the results of preliminary test and final test scores on brain jogging training model and intelligence level (IQ). See figure 1.

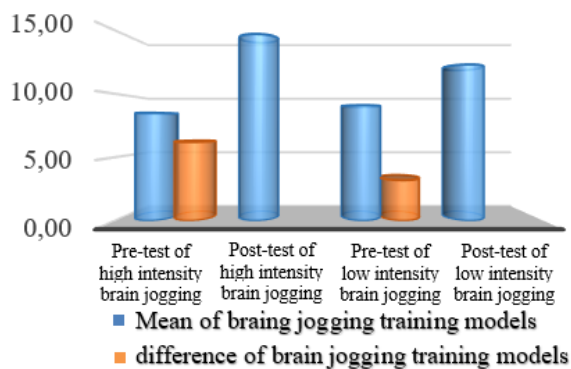


Figure 1: The Average of preliminary test and final test scores of brain jogging training models intensity.

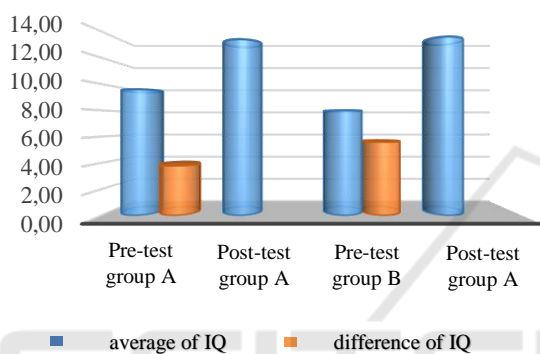


Figure 2: Average difference between preliminary and final test scores of domain group on Intelligence (IQ).

From figure 1, it was explained that there was different improvement between high-intensity and low-intensity, high-intensity improved more than low-intensity brain jogging. While in figure 2 explained that both groups were having improvement, but if we depth analyzing this chart, the improvement of group B was higher than group A.

After that, the review on the data processing for normality and homogeneity testing is known to be normal and homogeny in this study. Then the next stage of hypothesis testing can be done. In this study, while testing the hypothesis, the researchers used two-way-ANOVA with the help of program of IBM SPSS version 23. The purpose of testing the data is to see the effect between variables which furthermore need to testing the effectiveness between variables. The purpose is to know the difference of effectiveness information among variables on giving model of brain jogging training and with the Intelligence ability (IQ) owned by the individual. The test used is Test of Between-

Subjects Effects. The results of the test can be seen in table 1

Table 1. The average difference in preliminary test scores and final domain intensity in brain jogging training model.

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Corrected Model	85.400 ^a	3	28.47	8.31	.001
Intercept	441.800	1	441.0	129	.000
brain jogging intensity	45.000	1	45.00	13.1	.002
intelligent group (IQ)	16.200	1	16.20	4.73	.045
brain jogging intensity *intelligent group	24.200	1	24.20	7.06	.017
Error	54.800	16	3.425		
Total	582.000	20			
Corrected Total	140.200	19			

Corrected Model is the influence of all independent variables, which is the training model of brain jogging and the group of intelligence potential (IQ) and the interaction of both of them to the dependent variable that is the increase of concentration. Based on the data obtained with corrected model, the significance value is $0.001 \leq \alpha$ ($\alpha = 0.05$), so the model of brain jogging trainings, intelligence potential, and interaction, have a significant effect together to increase the concentration of Basketball athletes.

Intercept is the value of the dependent change (the concentration increased of basketball athletes) without necessarily influencing the existence of all independent variables (brain jogging training model and Potential Intelligence (IQ)), it means that without the influence of independent variable, dependent variable can change value. The value of the intercept significance is $0.000 \leq \alpha$ ($\alpha = 0,05$), so the increase of basketball athletes concentration can change its value without any influence from brain jogging training model and intelligence potential (IQ).

Intensity of Brain Jogging is the influence of intensity variable of brain jogging subjects to the increase of basketball athletes concentration. There was significant value of brain jogging intensity of $0,002 \leq \alpha$ ($\alpha = 0,05$), so the intensity of brain jogging had significant effect to the increase of basketball athletes concentration.

Intelligence group is the influence of the subject intelligence group variable to increase the concentration of basketball athletes. The was a significance value of intelligence group $0,002 \leq \alpha$ ($\alpha = 0,05$), so that intelligence group significantly

influence to increase of basketball athlete concentration.

Intensity of Brain Jogging * Intelligence group is the influence of interaction between brain jogging intensity and intelligence group given to result of improvement of basketball athletes concentration. Obtained value of intensity brain jogging * intelligence group $0.017 \leq \alpha$ ($\alpha = 0.05$), so the intensity of brain jogging and intelligence group significantly influence the increase in the of basketball athletes concentration.

Based on the conclusions above, due to the test results, it was indicated that there was a significant influence, then two-way-anova analysis is continued for discussion of analysis in order to be interpreted from the data will be described to answer the hypothesis.

The results of the calculation of ANOVA techniques and the results of the tests of between-subjects effects, in the Corrected Model column showed that the value of F obtained by 8.31 with a significance value $0.001 < \alpha$ 0.05 then this means that H_0 is rejected. These results provide an explanation that the use of both models of brain jogging trainings with IQ intelligence makes a real difference. So "there is a significant difference in effectiveness between the brain jogging training model and the potential for intelligence (IQ) to increase concentration".

Next on intensity brain jogging columns * Intelligence level group shows that the value of F obtained by 7.06 with a significance value $0.017 < \alpha$ 0.05 then this means that H_0 is rejected. These results provide an explanation that there is interaction (combined effect) between the training model of brain jogging and intelligence (IQ). Therefore it can be concluded that: "there is interaction between model jogging training with the potential of intelligence (IQ) to increase the concentration.

In columns of high intelligence group, it showed that the value of F obtained by 4.73 with a significance value $0.045 < \alpha$ 0.05 then this means that H_0 is rejected. These results provide an explanation that high and low iterative brain jogging training models have a significant effect on high IQ groups. Therefore it can be concluded that: "there are significant results of high intensity brain jogging and low intensity brain jogging models in the high intelligence potential (IQ) group on increasing concentration".

Furthermore, based on low intelligence, group columns showed that the value of F obtained by 4.73 with a significance value $0.45 < \alpha$ 0.05 then this

means that H_0 is rejected. These results provide an explanation that the model of training jogging high-intensity and low-intensity gave a significant effect on the low IQ group. Therefore, it can be concluded that: "There are significant results of high intensity brain jogging and low intensity brain jogging models in the Low Intelligence (IQ) potential group to increase concentration".

4 DISCUSSION

The models of high-intensity brain jogging trainings provide better and more significant effectiveness than low-intensity brain jogging trainings to increase the concentration of basketball athletes. Intensive training with good quality trainers and designed the training program in such a way as to be able to manipulate the volume and intensity of the training according to its scientific principles in training. To create successful training program, coach make manipulate several training variables mainly volume and intensity. So from the opinion, it confirmed that the importance of a trainer manipulating the volume and intensity in order to achieve the effects of the training itself.

Based on the results of the first hypothesis that explains, there was a significant difference between the model of training to increase the concentration of basketball athletes. If both models of brain jogging training were combined with other variables as the basis of treatment, then there were different results. The results of this study indicate that there was an interaction between training model and the potential of intelligence (IQ) to increase concentration. The results of this study showed that athletes who have high intelligence level and trained with high intensity brain jogging have a significant effect on the increase in concentration and the results obtained higher when compared with athletes who have high intelligence but trained with low intensity. This explains that athletes who have high intelligence will respond more quickly to new things to train the brain so that the brain will be trained as well as the body if trained physically.

The next discussion, for the third finding, shows that there were significant results of high intensity brain jogging and low intensity brain jogging models in the high potential intelligence group (IQ) to increase concentration. According to Da Silva (2015) that a well-functioning visual system had more influence on cognitive abilities. All of the above study makes the reason according to Lutz (2017) that "all these study results show why life is

so effective: it is based entirely on the insights gained from study. In Life Kinetics, unusual motion assignments were combined with cognitive and visual. It was explained that all these findings show why Kinetic life is so effective.

Based on the results of the experts above explain the important impact of the existence of training kinetic life or brain jogging and the results of study conducted by researchers can be concluded that athletes who have high intelligence has the potential to perform the movement as a whole and complex and capable of performing skills and fast performed and also accurate in an effort to complete a good training task. Athletes who have high-intelligence and given a different model of training appears to have significant results.

The next discussion, the fourth finding showed that there were significant results of high-intensity brain jogging and low-intensity brain jogging models in the low-intelligence potential (IQ) group on concentration improvement. This training brain jogging training model is not expect the athletes to able to perform skillfully, but this model expect the athletes to be able to follow the movement given so that human resources (brain) continue to be trained. Because according to the dikutif Lutz of North America (2017) explains that "Life Kinetik training has been developed in such a way that no one practices the same activity to the point where they experience competency in the task. Instead, Life Kinetic training keeps the brain confused ". Life kinetic training is developed in such a way that no one practices the same activity to the point where they experience competence in the task. Instead of training kinetic confuses your brain, it means that brain training jogging will make the practitioners being pushed to make a motion that is assigned, so that it becomes a challenge for brain jogging practitioners.

Based on the results, it showed that athletes who have low-intelligence and given different training models has its own uniqueness, athletes will be able to adapt to the movement after several times with explanations of researchers and trainers. So the athletes keep trying the brain jogging motion until the end of the training program. In this study there were significant results for athletes who were given models of high-intensity brain jogging and low-intensity brain jogging trainings.

5 CONCLUSIONS

Based on the results of data analysis and discussion of study results, then the next researchers can take the following conclusions: (1) There was a significant result model of training with high-intensity and low-intensity brain jogging of Basketball athletes. (2) There was an interaction between the brain jogging training model with the potential of intelligence (IQ) to increase concentration. (3) There were significant results of high-intensity brain jogging and low-intensity brain jogging models in the high potential intelligence (IQ) group to increase the concentration. (4) There were significant results of high-intensity brain jogging and low-intensity brain jogging models in the low-intelligence potential (IQ) group on increasing the concentration.

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