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"Promoting Investment in Physical Education and Sport Programmes"

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PROCEEDING

THE 3rd INTERNATIONAL SEMINAR ON PHYSICAL EDUCATION, SPORT AND HEALTH 2013

"Promoting Investment in Physical Education and Sport Programmes"

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Effect Modification Sanbon Kumite with Interval Training To increase VO2max

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Abstrak

Sanbon kumite modifications performed aerobically , or anaerobically in addition to improving skills karateka and other physical components also can increase maximal aerobic capacity or VO_2Max. Thus, one fundamental thing in this study is to apply the method of interval training in Sanbon kumite drills because until now there has been obtained as to what specific training activities that can increase maximal aerobic capacity or VO_2Max in sport karate . The general objective in the study was to study the effect modification Sanbon Kumite , the interval method 1:1 and the method of interval 1:2. to increase VO_2Max velocity . This type of research is experimental research , using a pretest - posttest design Randomized Control Group Design . This design has a control group with the treatment group were randomly allocated to be able to cope with extrinsic factors that could. Populatio selection bias in this study is a beginner karate UNG which has the following characteristics sexes Male , 19-21 years old , able-bodied numbered 73 Karateka . Researchers conducted the screening. Inclusion Criteria Karateka , Body Weight , Height , Body Fit , then the population to 26 karateka . Set the number of samples 24 . The results showed that VO_2Max data obtained from the test results , showing an increase after a given treatment interval method Sanbon committee with 1:1 . It can be seen from the mean final test is greater than the average initial test . the interval method is also 1:2 . It can be seen from the mean final test is greater than the average initial test .

***Keywords**: Interval Training, Sambon Kumite, VO_2Max*

Knowledge of karate-do coach in Indonesia is severely limited on physical techniques that include Kihon, Kata and Kumite. Resources with the level of "mediocre" is compounded by the absence of their dominance at all the knowledge of the techniques of karate, Japanese culture is full of value discipline, the concept of the meaning of KATA, this will slow down the optimization karate achievements in national and international arena.

Karate martial arts is perceived as a compact as regularity concept jerky movements together. In learning karate needed physical and mental condition of readiness that will be formed by itself when studying karate regularly and correctly. Physical and mental potential to effective motion the synergism basic motion functions karate structured to face the opponent.

Physical exercise in sport karate integrated into all elements of karate, a before exercise Kihon, Kata, Kumite must begin with Taiso or known stretching exercises / stretching or warming, to prepare for the rest of the body as optimal as possible, for the next exercise, because to function, avoid injury, because the muscles

bones, joints, nerves, already stretching. Form the composition of muscle mass and bone strong and flexible for long-term exercise. General stamina gauge, which can regulate the rhythm of breathing and heart rate, the speed and strength in a short-term training process. and Strengthening mental. Next will practice Kihon. As the smallest element on which the establishment of a technique. Kihon is more meaningful as the reference standard forms the basis of all techniques / movement in the Kata and Kumite done.

Current observations karate trainers do not utilize specific elements of karate movements in karate where it is integrated with one another, as the element in order to improve the physical condition of the karateka, in general this time karate trainers in providing physical exercise are still using common training program implemented by various sports, such as running away for around a building or around a road with bare feet (no shoes) in a typical karate dojo, this method is not effective and efficient.

This causes low VO2max capability of reaction velocity decreases karateka it will affect the performance in the match with high intensity, which uses ekplosif like doing blow Gyaku Tsuki, Mawasigeri, or at the time of canter blows from the opponent, karateka lost cause reaction speed points for opponents. The incident occurred when the match-up, because almost all karateka who play the game to win in the beginning. When the second game karateka energy decreases at them as if did not have the power anymore.

Besides causing low VO_2Max training process that rendered optimally develop the potential of such systems in the body karateka energy metabolism, such as muscle energy system is one in which muscle tissue that requires ATP. The energy used for muscle contraction, causing movements as physical activity. Understanding of the energy system training predominantly in sport karate training is essential to determine the proper form to improve performance karateka.

In order to optimize the training referred to above must be in the crutch by appropriate training methods. According to Lynn (2009) that the method of interval training can help improve cardiovascular fitness, increase speed, improve VO_2Max as a whole. Interval training is that training is done with high intensity and low intensity exercise periods alternated with periods of rest.

Sanbon Kumite training in order to get optimal results, it is necessary systematic training through interval training methods. Implementation of interval training course must be based on the principles of training. In this regard, the activities in interval training is not implemented in the form of running as practiced by athletes sprinters or other athletes in endurance interval training program. Activities undertaken in interval training is a type of sport specific training karate, which Sanbon kumite which is a method with three different techniques such

as jodan attack, chudan and mae-geri or jodan, chudan and kekomi. While karateka who survive have to do defense (uke) is true to the technique used attack and counterattack after three rebuttal.

Sanbon kumite training is generally done to look at the forms of Karate Basic Techniques (Kihon) which Tsuki, Geri, Uke by karateka what is in conformity with the basic techniques of karate as chudan is at the regional, cross straight to the liver where the fingers clenched with exertion measured also by the end of the whole hand, and also applies kick (Geri) and defense (Uke) as well as the speed of the reaction and improve attack techniques and techniques to survive.

Through specific physical training in sport karate will provide a response to specific physiological adaptations anyway. Hojat Hassan Mir Mousavi and Farhadi (2012) concluded that exercise should be done specifically, with emphasis on the element of knowledge of anatomy and physiology to olaharaga that in practice and the characteristics of movement is needed at the time of the match itself. Thus, to determine and identify a variety of factors such as energy systems, the efficiency of body movement and durability, with specific training will be able to save time and costs. Specific concept exercise is very important for physiological adaptation, that the maximum benefit will be obtained from a similar training stimulus or a replication of movements performed in the sport, including in terms of methods and forms of traini physical condition.

Of opinion on the writers interested making modifications Sanbon Kum Sanbon kumite exercises are often done karateka but not yet programmed with g views of the training methods w performed. Because the karateka assu that Sanbon kumite exercise was done improve stroke technique and kick it. W specific exercises diberharapkan Sanbon kumite training through the probl of physical condition especially VO_2Max reaction rates can be overcome with g karateka. in addition to the physical prese of these findings may also alleviate the ka coach in the formulation place is very lim exercise using only the narrow spaces as office space or school bansal front yar

Sanbon kumite modifica performed aerobically, or anaerobica addition to improving skills karateka other physical components also can incr maximal aerobic capacity or VO_2Max. T one fundamental thing in this study is to a the method of interval training in Sa kumite drills, because until now there been obtained as to what specific tra activities that can increase maximal ae capacity or VO_2Max is in sport karate.

Based on Background and Pro Identification, then the problem formula this paper is as follows: Is there any modification by the method Sanbon long Interval Training method of 1:1 a Training Interval are to increase VO_2Ma

there differences in the influence of training method interal length 1:1 and 1:2 are interval training methods to increase VO_2Max. Is there any interaction between the type of exercises with training methods to increase VO_2Max.

Sanbon kumite training is fundamental to the practice to jiyu kumite or free fight by Sujoto. BJ (2006) Sanbon kumite was attacked by three rare technique of attack and defense three times. Furthermore, in the said by Rudianto. D (2010) that the Sanbon Kumite is a method with three different techniques such as jodan attack, chudan and mae-geri or jodan, chudan and kekomi. Karateka who survive must do the proper defense against an attack technique used and the counter-attack after three rebuttal.

Kumite training is an exercise in which mutual defense and attack using karate techniques. (Sujoto. B.J, 2006) was added by Rudianto. D (2010) Kumite is an advanced piece of kihon and words. According home he said, is the depiction of the hands and feet crossed each other (collide). Kumite karate as part of the exercise that teaches the karateka to practice techniques such tarungan strike, parry, dodge, hit back is a regular expression with a hassle-free security to avoid injury.

From the above it can be concluded that the Sanbon kumite is a technique to fight or compete with three survived the attack and defense three times. At Sanbon kumite drills, a take on the role as the other attackers and survive. Attacker uses the same technique three times in attack and defense rebuttal did the same technique. On defense the last third parties launched a counterattack.

Judging from the shape of motion exercises Sanbon kumite is a specific exercise of sport karate and is a replication of the form of the motion at the time of the match. According to David Nunan (2006) that each branch should be given specific training, and techniques that are directly involved in the physical movement of a skeleton, which muscles in motion a desire to provide movement. Training should be selected specifically for the basic engineering mechanics and structural movement in accordance with the chosen sport. Artificial training will be useful for the improvement of physical and karate techniques.

Harsono (2004) says that the maximum benefit can be derived from a similar training stimulus or a replication of movements performed in the sport, including in terms of methods and forms of physical exercise conditions. Specializes in issues regarding this training, Ozolin in Bompa (1983) suggested that training more emphasis on the first two aspects are in accordance with the field of sports training specialization and the second is the use of training to develop the skills biomotorik required by the sport. So it is said by (Kusnanik, Nasution and Hartono 2011). that, according to the principle of specificity of training should be focused on the

physiological systems in sport specific training in order to achieve the optimum.

In connection with this study, the specific purpose of training is the application of Sanbon kumite training is expected to improve the physical condition, especially in terms of the durability of the maximal aerobic capacity (VO_2Max). Therefore Sanbon kumite training should be based on the principles of training and the intensity of training that can give emphasis on the cardiovascular system, thus physiologically, the heart and lungs can adapt as a result of Sanbon kumite training, so that maximal aerobic capacity (VO_2Max) sportsmen can be increased, which in turn can be more efficient athlete in the use of oxygen and determine the physical performance of athletes and skill during the match.

Interval training is basically divided into 3 forms, which forms a short interval training, interval training shapes and forms of interval training are long. Noting the existence of any form or kind of interval training on the implementation of the main principles of training is influenced by the intensity and duration as well as the purpose of energy systems that will be developed (Fox and Mathews, 1988, Rushall and Pyke, 1990). Associated with the energy system will be developed, shape or form short interval training are training with high intensity and short duration is more suitable for the development of anaerobic energy system, while the long form of interval training with low intensity and long duration is more suitable for developing the aerobic system. Additionally interval training can be used to develop speed, strength, and durability (Bompa, 1994).

Interval training can be the best for sport karate, karate is a sport because it is intermittent with intermittent rest periods, as well as interval training activities interspersed with rest intervals. On this basis, it is more work or activity can be completed in a relatively higher intensity than the type of continuous training.

Maximal aerobic capacity (VO_2Max) shows the maximum capacity in the aerobic ATP meresintesa (Kusnanik, Nasution and Hartono, 2011). While Astrand and Rodhal (1986), gives the definition of maximal aerobic power as the ability to breathe oxygen highest attainable along a sportsman athlete perform certain physical. Rowell in Roesdiyanto and Budiwanto (2008) states that the maximal oxygen uptake were measured to determine system capacity kariovaskular. Work capacity under aerobic conditions is a blend or combination of capacity respiration and the cardiovascular system to deliver oxygen kejaringan muscles are contracted, maximal oxygen uptake is the maximum capacity of one's energy on aerobic work.

Metode

This study aims to determine the effect of the difference between training Sanbon Kumite with 1:1 interval method, and

Sanbon Kumite training with 1:2 interval methods to increase VO_2Max Karateka Beginners UNG. This type of research is experimental research, using a pretest-posttest design Randomized Control Group Design (Kuntoro, 2011:187). This design has a control group with the treatment group were randomly allocated to be able to overcome the selection bias that extrinsic factors can be minimized.

The population in this study is the UNG karateka who has the following characteristics gender Male, 19-21 years old, able-bodied totaled 73 Karateka. Researchers conducted the screening menguna Inclusion Criteria Karateka, Body Weight, Height, Body Fit, then the population to 26 karateka. Set the number of samples in this study by using the formula Kuntoro (2010:213)

The sample size required is 2 * 12 = 24. Researchers took samples of 24 out of a population of 26 by using simple random sampling because the population is assumed to be homogeneous, after obtaining the sample by 24 then researchers conducted random allocation to the treatment group and the control group. Furthermore, each group was given symbols to facilitate statistical analysis.

This study took place in the sports labaoratorium FIKK and Shutter Mission Hall Dormitory, State University of Gorontalo. The timing of the study for 8 weeks. Measuring VO2max with pro Cosmed-Fitmate treamill for measuring VO_2Max with standard Run.

Results

The results obtained in this study is a collection of empirical facts to describe the experimental comparison of the influence of group I and group II experimental and control groups to increase VO_2Max. To achieve the research objectives have been formulated, based on the design and implementation of this study variables.

The data will be described in general from each of the baseline variables (pre-test) of the data measured before the samples are given treatment and final data (post-test) of the data measured after the samples are given treatment, and post-test data is the difference the pre-test (delta).

Test results and measurements of the dependent variable, then analyzed using descriptive and inferential statistical tests. Before testing the hypothesis, first tested the requirement analysis is to test the normality of the data using the test Kolmogorove-Smirnov Test at the 5% significance level, and homogeneity of variance test, using a test technique Levane's Test Statistic significant at the 5% level. To test the first research hypothesis and the second used the t test in SPSS 18 is known as paired test Sarwono (2009), subsequent to the third research hypothesis used One Way Anova statistical analysis. Rejection decision of the three hypotheses using a significant level of 5%.

Testing normality of the data was conducted to determine whether the normal distribution of the data or in other words to look up the normal distribution of the data obtained or not by reference to Sarwono, (2009); Wijaya, (2010) and Sujianto (2009). To test the normality of the data used to test the One-Sample.

Based on the obtained data normality test statistic test values as listed on the information value of F table in SPSS with significance level α = 0.05 or 5%, Based on the data information, it can be seen that the value of the three variables has a significant (probability value) P> 0.05 Thus, the null hypothesis (Ho) is accepted, which means it has a meaning that each of the data on these three variables are normally distributed.

Date VO_2Max test results include descriptive statistical tests and inferential statistical tests. Descriptive statistics, namely the calculation of the average (mean), variance (S2), the standard deviation, (SD), tests of normality and homogeneity of variance. While the inferential statistical test that is testing the difference between pre-test and post-test with the t test and between groups with different test one way ANOVA statistical test of the dependent variable VO_2Max.

Discussions

Physical exercise can increase the value of VO_2Max. Exercise should pay attention to physical preparation, technique, tactics and psychological. Increased physical exercise for the purpose of VO_2Max, the speed of reaction and recovery should be done regularly (Bompa, 1999).

Sanbon Kumite bout is a 3 step, one form of exercise in sport karate movements with the aim of improving harmonization Kihon (Basic Karate). In this paper Sanbon kumite has been modified by the method of interval training implementation 1:1.Way of implementation begins with Taiso / Strassing followed by a dynamic warm up with kihon move, where the exertions began slowly move further to 100% power *karateka*.

Karateka take positions in pairs to do the exercises *Sanbon Kumite* modifications beginning with respect for fellow *karateka* then make a move forward Jodan 3 times, while doing *soto uke* steps back (on defense) after it is doing *Jodan* punches do changing defense soto uke while the backward Jodan uke will blow, after it changed its position again with different models at the 3 times that in at chudan then parry with soto uce. Two *karateka* to perform the same movement after the position start by doing 3 times geri (kick) after the 2 karateka doing the same movement.

With a 90% maximal exercise intensity with a duration of 3 minutes, 3 minute intervals, and repetition 3-10 times. subject monitored his pulse by means of polar whether the exercises included in the training zone. Sample pulse during exercise in on the exercise zone.

Based on the analysis of the increase in VO_2max between groups with group method of interval 1:1 1:2 at 2.61250 and p =

0.274. This shows that there is no significant difference between the increase in VO_2max both study groups. This is because the better the lung diffusion capacity, the greater the volume of gas that diffuses the improved ability to perform load cardiorespiratory *karateka* without experiencing significant fatigue. So trained *karateka* will breathe more slowly and deeply, and oxygen in the muscles need to work on reduced ventilasipun process (Ratno WA 1999). Sanbon Kumite drills are conducted regularly for 8 weeks can improve VO_2max *karateka*.

From the above results can be determined more dominant group training to improve VO_2max, namely: (a) The first is the dominant experimental group with the treatment I Sanbon training committee with 1:1 interval method is better in improving VO_2max, compared with the experimental group II with treatment Sanbon committee training with interval methods 1: 2. It can be seen from the average difference between the experimental group II and group I, which shows the number of experimental mines or -2.61250. Further treatment may be explained also that the committee Sanbon training with 1:1 interval method is better in improving VO_2max, compared with the control group. It can be seen from the average difference between the control group and the experimental group I, which shows the number of mines or -7.73750.

(b) Dominant second experimental group II with treatment Sanbon training committee with 1:2 interval method is better in improving VO_2max, compared with the control group with conventional treatment. It can be seen from the average difference between the control group and experimental group II which shows the number of mines or -5.12500. (c) Dominant third was a control group treated with conventional training.

Conclusions

1. Exercise modifications Sanbon Kumite with 1:1 interval training method is better and most effective way to increase VO_2max.
2. Modification Sanbon Kumite training with interval training method 1:1 and 1:2 Interval training is better and more effective for improving VO_2max.
3. Sanbon Kumite modification is still better used for training to improve VO_2max, rather than standard Sanbon kumite.
4. The interaction between type of exercise Modifications Sanbon Kumite training and interval training method 1:1 and 1:2 interval training occurs on improving VO_2max. than the standard Sanbon kumite.

Suggestions

1. Need to be similar to the writing of the conditions subject asramakan trained and in control to be carried out strictly.
2. Similar to the writing needs to involve a larger sample and with varying age groups
3. To get better results writing, it is necessary for the extended writing karateka who trained in accordance with the weight or class matches

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