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Effect of Kalaripayattu on Selected Physical Fitness and Physiological Variables of School Children

Mr. Baby Shijansha KP[1]

[1]Research Scholar, Department of physical Education, University of Calicut, Kerala & Physical Education Teacher, Sir Syed Higher Secondary School, Taliparamba, Kannur, Kerala, India.

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Abstract

The main objective of the study was to investigate the effect of kalaripayattu training and karate training, on selected physical, physiological variables among high school boys. And the sub purpose of the study was to find out which of the training programme is more effect among the selected training programmes. To achieve the purpose of this study the investigator selected sixty (N=60) school boys. 20 subjects were assigned to each group namely, the kalaripayattu training group (nkp), karate training groups (nkt) and to a control group (ncn). The study was formulated as pre and post test randomize control group design, in which sixty school boys were divided into three equal groups. The experimental group – 1 (n=20 KPG) underwent kalaripayattu training, the experimental group – 2 (n=20 KTG) underwent karate training and group - 3 served as control group (n = 20 CNG) who did not undergo any specific training. Considering the nature of the training method chosen the following performance variables were selected as dependent variables - physical variable; namely agility, flexibility, muscular strength and endurance and physiological variables namely; vo2 max and resting heart rate. Independent variables - in the study, three different training approaches were adopted as independent variables; kalaripayattu training (KPG) and karate training (KTG). The collected data were statistically examined for significant difference by dependent 't' test. No attempt was made to equate the groups in any manner. Hence, to make adjustments for difference in the initial means and test the adjusted post test means for significant differences, the analysis of covariance (ANCOVA) was used. Whenever the 'F' ratio was found to be significant, LSD (Least Significant Difference) test was used as post-hoc test to determine which of the paired means differed significantly. In all cases, the criterion for statistical significance was set at 0.05 level of confidence ($P < 0.05$). The findings of the study are, the first (1) the statistical result shows that the given kalaripayattu and karate has produced significant results when compared with pre and post test scores. The second (2) that the results shows that there was no significant difference in training programme for improving selected physical fitness and physiological variables.

Key Words: Kalaripayattu, Physical Fitness, Physiological Variables.

1. Introduction:

Martial arts are codified systems and traditions of combat practices, which are practiced for a number of reasons: as self-defense, military and law enforcement applications, mental and spiritual development; as well as entertainment and the preservation of a nation's intangible cultural heritage. Although the term martial art has become associated with the fighting arts of eastern Asia, it originally referred to the combat systems of Europe as early as the 1550s. The term is derived from Latin, and means "arts of Mars", the Roman god of war. Some authors have argued that fighting arts or fighting systems would be more appropriate on the basis that many martial arts were never "martial" in the sense of being used or created by professional warriors. Clements, John (2006).

Kalaripayattu the oldest martial art form of Kerala in South India, is formed by the combination of two words Kalari means school, gymnasium and Payattu means to fight or exercise. This unique martial art form is said to be more than 2000 years old. Kalaripayattu is said to be very old form of martial art and has its connection with the fighting arts described by the Vishnu Purana as one of the eighteen traditional branches of knowledge. Kalaris are the schools where training in this martial art form is imparted by Gurukals or masters According to historic believes this martial art form is indigenous to the Southern Indian state of Kerala which legend has it, was created by the sage Parasurama, an

incarnation of Lord Vishnu, by throwing his axe into the sea which receded till the point where it fell. Parasurama then established forty-two kalaris and taught twenty-one masters of these kalaris to protect the land he created. Till then it's evident that this historic martial art form has been deep rooted in the traditional form of Kerala and is still flourishing with pride and glory.

1.1 Objectives of the Study:

1. To find out the effects of kalaripayattu training (KPG) on selected physical and physiological variables of high school boys.
2. To find out the effects of karate training (KTG) on selected physical and physiological variables of high school boys.
3. To find out the superiority effects of selected training on selected physical and physiological variables of high school boys.

2. Materials & Methods:

2.1 Participants:

The study was designed to find out the comparative effects of kalaripayattu training and karate training on selected performance variables among school boys. For the purpose of the study 60 students from Sir Syed Higher Secondary School, Taliparamba, Kannur, Kerala, India, aged between 10 to 12 years were selected randomly form the students participating in sports.

2.2 Research Design:

The study was formulated as pre and post test randomize control group design, in which sixty school boys were divided into four equal groups. The experimental group – 1 (n=20 KPG) underwent kalaripayattu training, the experimental group – 2 (n=20 KTG) underwent karate training, the experimental group – 3 served as control group (n = 20 CNG) who did not undergo any specific training.

2.3 Variables and test items:

1. Physical variables namely agility – 10X4 mts shuttle run, flexibility - sit and reach test and muscular strength and endurance - sit ups
2. Physiological variables namely VO2 Max - "Astrand – Rhyming Nomogram Chart" method and Resting heart rate - Using radial pulse.

2.4 Statistical tools:

The collected data were statistically examined for significant difference by dependent 't' test. No attempt was made to equate the groups in any manner. Hence, to make adjustments for difference in the initial means and test the adjusted post test means for significant differences, the analysis of covariance (ANCOVA) was used. Whenever the 'F' ratio was found to be significant, LSD (Least Significant Difference) test was used as post-hoc test to determine which of the paired means differed significantly. In all cases, the criterion for statistical significance was set at 0.05 level of confidence ($P < 0.05$).

3. Findings of the Study:

Selected physical fitness variables:

***Agility*:** The experimental groups had improved the agility performance than the control group after 12 weeks training. Karate training is more effective than the kalaripayattu training to improve agility performance. Agility is a bio-motor ability that can be improved. It development requires a solid foundation of strength and a huge amount of body control, it is key that athletes learn how to produce and absorb force as efficiently as possible at pace and under pressure. Additionally, to truly develop agility we need to integrate the ability to anticipate, recognize, react and execute explosive movement. In the karate training, subjects were under gone both agility drills, that require rapid changes of direction forward, backward, vertically and laterally and movement drills. Thus it might be the reason for improving agility in the case of karate training group than the other group. A finding of the Rajith, T.R and Dr. A. Mahaboobjan (2016) is also agreement to the finding of the present study.

Flexibility: The experimental groups had improved the flexibility performance than the control group after 12 weeks training. Kalaripayattu training group is more effective than the karate training programme in the development of flexibility performance. Increasing the flexibility will lengthen the muscles, improve the exercise performance and help us

with everyday activities. Many factors; it includes gender, heredity, pain, injury and age that affect in the improvement of flexibility. By incorporating stretching exercises into the fitness program (in training programme and warm up and down session), it can improve range of motion of a joint or a series of joints, reduce joint pain, decrease risk of injury and improve ease of movement. The better performance of the specific training group may be due to their scientific flexible kalaripayattu training (meipayattu training) given to the groups. Findings of the Rajith, T.R and Dr. A. Mahaboobjan (2016), Hasan Abdi and etal; (2010) are also agreement to the finding of the present study.

Muscular strength and endurance: In case of muscular strength and endurance performance, no training group is more effective in the selected school boys. The experimental groups had improved the muscular strength and endurance performance performance than the control group after 12 weeks training. Muscle strength and endurance is the ability to do something over and over for an extended period of time without getting tired. The better improvement of the specific training group may be due to the jumping and other core strengthening exercise programme, explosive weight training etc., given to the specific group. Finding of the Hasan Abdi and etal; (2010) is also agreement to the finding of the present study.

Selected physiological variables

VO_2 Max: The experimental groups had improved the VO_2 Max than the control group after 12 weeks training. In the case of VO_2 Max, the kalaripayattu training and karate training are similar effective than the karate training in the selected school boys. The continuous physical activity or exercise programme can make your heart larger and increase your stroke volume and cardiac output. The better performance of the experimental groups may due to the characteristics of the kalaripayattu and karate training drills that is the combination of explosive exercises and continuous running drills. Previous study made by Rajith, T.R and Dr. A. Mahaboobjan (2016), Hasan Abdi and etal; (2010) supports the results of the present study.

Resting heart rate: The experimental groups had improved the scores of resting heart rate than the control group after 12 weeks training. The study shows that, kalaripayattu training is more effective than the karate training to reduce resting heart rate. The experimental groups had improved the resting heart rate than the control group after 12 weeks training. The normal resting heart rate for adults varies considerably from person to person. Certain medical conditions, certain medications and cardiovascular fitness status can all affect the resting and sub-maximal heart rate. Similar suggestion by Rajith, T.R and Dr. A. Mahaboobjan (2016) supports the results of the study.

4. Conclusions:

The findings of the study are, the first (1) the statistical result shows that the given kalaripayattu and karate training has produced significant results when compared with pre and post test scores. The second (2) that the results shows that kalaripayattu training would have better effect in the flexibility and resting heart rate. In the case of agility, karate training group had more effect than the other group. No training group would have better improvement in the following physiological variables namely; muscular strength endurance and VO2 Max.

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Corresponding Author:
Mr. Baby Shijansha KP,
Research Scholar, Department of physical Education, University of Calicut, Kerala & Physical Education Teacher, Sir Syed Higher Secondary School, Taliparamba, Kannur, Kerala, India.