

EFFECT OF SILAMBAM PRACTICE ON BODY COMPOSITION AGILITY AND CARDIOVASCULAR ENDURANCE AMONG COLLEGE GIRLS

P.Mohanavalli^a, K.Sreedhar^{b,*} and Jothy^c

^a *Lecturer in Physical Education, Shri Shankarlal Sundarbai Shasun Jain College for Women, Chennai. Tamil Nadu-600017, India*

^b *Associate professor, Department of Physical Education & Sports Science, Annamalai University. Annamalainagar – 608 002.Tamil Nadu, India*

^c *Associate professor, Y.M.C.A College of Physical Education, Chennai. Tamil Nadu-600035, India*

*Corresponding Author Ph: 09443102524; Email: sreedhar101@yahoo.co.in

DOI: 10.26524/13419

Abstract: The purpose of the study was to find out the effect of Silambam practice on body composition and cardio vascular endurance among college girls. Silambam fencing is a martial art native to the soil of Tamil Nadu. It has been originated from 3000 B.C and practiced by the pre-historic Dravidian Tamils who were dwelling from the Mohan-ja-daro & Harappa regions and is still practiced today. To achieve the purpose of this study, 40 sedentary college girls were selected as subjects. The age of the subjects were ranged from 18 to 20 years. The subjects were further classified at random into two equal groups of 20 subjects each. Group - I underwent Silambam training for three days per week for sixteen weeks and group - II acted as control. The selected criterion variables namely body weight, BMI, lean body mass, percent body fat and cardio vascular endurance were assessed before and after the training period. The collected data were statistically analysed by using Analysis of Covariance (ANCOVA). From the results of the study it was found that there was a significant improvement in cardio vascular endurance and significant reduction in body weight, BMI, lean body mass, and percent body fat with no significant change in agility among the experimental group when compared with the control group.

Key words: Silambam, body composition, cardio vascular

Introduction

India is a Land of Knowledge, where many Gods and Saints have given divine knowledge to lead a good human life. The art of Silambam also has age-old history in ancient texts of South India. 'Silambam' denotes an elastic cane bamboo, uniform in cross section from end to end, having a length a little less than that of the height of the performer wielding it [1]. Silambam is a common word now used in Tamil Nadu, for the Martial art of stick- fencing. In other parts of South India it is called by different names, such as Kolu Varasay or Dhonay Varasay in Karnataka, Kolu Aatta or Karadi Aatta in Andhrapradesh, Neduvai in Kerala. Generally in silambam includes single stance (otrai suvado) separate stances, (pereevusuvado) double swing, weapons sequences, locks, throws long stick and short sticks series techniques are there [2]. British government had banned the practice of warfare and martial art in any form in India and they knew the dangers of Indian martial art. British troops were well trained to use with explosive and guns, but they were lacking the physical compact skills. This fear leads them to impose restrictions on Indian martial arts. The Kampu Soothram most Ancient text of Siddha Agasthiyar tells his learning experience of Kampu (Staff or Silambam). Later Siddha Agasthiyar composed art of using Kampu (Staff or Silambam) for self-defense in poetic form. Today the original texts directly written on palm leaf by Siddha Agasthiyar are not available. Saints who lived with him have grasped the meaning of the Siddha Agasthiyar poetry and passed it to their students and to the next generation till today. Siddha Agasthiyar composed many Poems on Kundalini, Varma, Kutthu Varasai, Siddha Vidhyam, Kampu Soothram and many other spiritual scripts and in this context Siddha Agasthiyar can be termed as the father of modern Martial Arts, which is practiced all over the world today. Even today we are looking in for the origination of the modern martial art; a scientific martial art that can protect human lives at dangerous situation. Today the great martial art of Tamilnadu is just reduced to a demonstration art in public gatherings and folk art festivals despite the effort of many well wishers. Silambam has the potential to be included as a mainstream activity in the physical education curriculum as it is simple, inexpensive and also has the capability of improving all the major biomotor abilities. There are many benefits to training in the martial arts. What often attracts students to the martial arts is the attempt to enhance not only the physical body but the mind and spirit as well. According to a study by Twemlow and coworkers (1996) [3], the top four reasons that people cite for studying the martial arts are self-defense, exercise, building self-confidence, and developing self-discipline. For several disease processes, training in the martial arts may be an excellent adjunct to other therapeutic interventions [4-6]. There is very few literature available on the effects of silambam training on these selected variables among Indian population in general and girls in particular. The present study was taken up to investigate the effect of silambam practice on body composition, and cardiovascular endurance among college girls.

METHODS

Subjects and variables

The experimental design adopted in the study was similar to a random group design involving 40 sedentary girls who volunteered for the study. A written explanation of the experimental procedure and potential risk factors were given to each of them. The age of the subjects were ranging from 18 to 20. The 40 subjects were randomly assigned to either control

group („CON“, No: 20) or experimental group, („EXP“, No: 20). Physical examination and medical checkup at the initiation of the study yielded normal results in all the subjects and none of the subjects received any medication during the period of the study. The selected variables were tested 24 hours prior (Pre) and 24 hours after (Post) the training program using standard and appropriate techniques.

Training

The experimental group underwent silambam practice thrice a week for a period of 16 weeks whereas the control group maintained their regular routine activities. The training commenced with one week of general physical conditioning for the experimental group, so that the subjects were ready physically and mentally to take on specific load administered to them for the purpose of the study. The following techniques were practiced from week two to sixteen for 3 sessions per week with 30 to 65 min per session with a progressive increase in duration with the number of weeks. Each session starts with a 5 min warm-up teaching the skill, correction and practice initially slowly till the subjects finds the rhythm and then with speed and the sessions end up with a 5 minutes warm down. Care was taken to avoid any injuries and proper instructions were given regarding using the stick, avoiding wrong foot movements and accidental contact with fellow subjects. The subjects of the experimental group practiced the following skills namely guru vanakam, kuthuvarisai, holding the stick (grip), basic foot movements (lessons I,II&III without stick), basic foot movements (I,II &III lesson with stick), basic boat swing (forward&reverse), forward rotation (full stick grip & middle stick grip), padaiveechu (nedungkkambu), padaiveechu in moving steps with full stick (nedungkkambu, forward & backward rotation(full & middle stick grip), rotation above the head (thalai sutru) with middle stick grip (nadungkambu), padaiveechu in moving steps with middle stick grip (nadungkambu), four house(kaaladai varisa), naaladai varisai with stick four direction, double stick (erattai kambu veechu), combination of all the skills(thanithiramai).

Statistical Technique

The data collected from Experimental group and control groups prior to and after completion of the training period on selected variables were statistically examined for significant differences if any, by applying analysis of covariance (ANCOVA). The pre test and posttest means of experimental and control groups were tested for significance by applying ANOVA. As both the groups (EXP and CON) were selected from the same population and no attempt was made to equate the groups on the selected dependent variables or any other common variables, initial differences may exist, and there is a possibility of affecting the posttest mean. For eliminating any possible influence of pre test means the adjusted posttest means of experimental and control group were tested for significance by using ANCOVA. All the data were analyzed using SPSS statistical package. The level of confidence was fixed at 0.05 level of significance as the number of subjects was limited and also as the selected variables might fluctuate due to various extraneous factors.

Results and Discussion

TABLE-I
Analysis of covariance for the selected variables among experimental group & control groups

		Experimental Group	Control Group	F-Ratio
LEAN BODY MASS	PRE TEST	113.21(11.66)	111.25(12.57)	0.26
	POST TEST	104.18(11.75)	111.97(12.39)	4.17
	AD PO TEST	103.20	112.90	149.72(P>0.05)
PERCENTAGE OF BODY FAT	PRE TEST	7.97(1.70)	8.10(1.70)	0.039
	POST TEST	5.80(1.28)	8.12(1.68)	25.10
	AD PO TEST	5.81	8.07	348.01
BMI	PRE TEST	23.71(0.64)	23.40(1.54)	0.793
	POST TEST	23.54(1.17)	23.71(0.64)	4.12
	AD PO TEST	22.60	23.70	125.74(P>0.05)
CARDIO-VASCULAR ENDURANCE	PRE TEST	1373.0(42.81)	1373.0(39.35)	0.00
	POST TEST	1490.0(56.20)	1374.50(41.92)	54.30
	AD PO TEST	1490.00	1374.00	412.83(P>0.05)
BODYWEIGHT	PRE TEST	61.00(5.30)	58.50(5.80)	2.13
	POST TEST	58.80(58.63)	58.80(5.80)	0.02
	AD PO TEST	57.23	60.02	128.75(P>0.05)

TABLE-II

The Pre And Post Test Means Of Silambam Training (EXP) And Control (CON) Groups With Percentage Of Gain

LEAN BODY MASS		PRE TEST	POST TEST	Gain	Percentage of Gain
	Experimental	113.21(11.66)	104.18(11.75)	9.03	7.97% ↓
	Control	111.25(12.57)	111.97(12.39)	0.72	0.65% ↑
PERCENTAGE OF BODY FAT	Experimental	7.97(1.70)	5.80(1.28)	2.17	27.23% ↓
	Control	8.10(1.70)	8.12(1.68)	0.02	0.25% ↑
BMI	Experimental	23.71(0.64)	23.54(1.17)	0.17	0.72% ↓
	Control	23.40(1.54)	23.71(0.64)	0.31	1.32% ↑
CARDIO-VASCULAR ENDURANCE	Experimental	1373.0(42.81)	1490.0(56.20)	116.96	8.52% ↑
	Control	1373.0(39.35)	1374.50(41.92)	1.5	0.10% ↑
BODYWEIGHT	Experimental	61.00(5.30)	58.80(58.63)	2.2	3.60% ↓
	Control	58.50(5.80)	58.80(5.80)	0.3	0.51% ↑

Lean body Mass levels shows a significant reduction (113.21 ± 11.66 Vs 104.18 ± 11.75 ; $p > 0.05$) i.e. a reduction of 7.97%. Body Mass Index (BMI) also shows a significant reduction of 0.72%, (23.71 ± 0.64 Vs 23.54 ± 1.17 ; $p > 0.05$). Percentage of Body Fat shows a significant reduction (7.97 ± 1.70 Vs 5.80 ± 1.28 ; $p > 0.05$) which shows a reduction of 27.23%. Body Weight levels shows a significant reduction (61.00 ± 5.30 Vs 58.80 ± 58.63 ; $p > 0.05$) a reduction of 3.60%. Cardio-vascular endurance levels shows a significant increase (1373.0 ± 42.81 Vs 1490.0 ± 56.20 ; $p > 0.05$) i.e. an increase of 8.52%. From the results of the study it was found that there was a significant improvement in cardio vascular endurance and significant reduction in body weight, BMI, lean body mass, and percent body fat and among the experimental group when compared with the control group.

Conclusions

On the basis of the results obtained it was concluded that silambam training resulted in a significant increase in cardio vascular endurance and a significant reduction in body weight, BMI, lean body mass, and percent body fat among college girls.

References

- [1] J. David Manuel Raj, Silambam: Technique & Evaluation, (Master's (M P E) Degree, Thesis in Physical Education submitted to the Jiwaji University. Gwalior, India. (1967) 259.
- [2] A. Arunachalam, Thenpandaya thamizhyarin silambam varalaruim, adimuraikalam, (1995) 1-9.
- [3] S.W. Twemlow, B.H. Lerma, S.W. Twemlow, An analysis of students reasons for studying martial arts, *Perceptual and Motor Skills*, 83 (1996) 99–103.
- [4] J. Hart, H. Kanner, R. Gilboa-Mayo, O. Haroeh-Peer, N. Rozenhul-Sorokin, R. Eldar, Tai chi chuan practice in community-dwelling persons after stroke, *International Journal of Rehabilitation Research*, 27 (2004) 303–4.
- [5] A.E. Kirsteins, F. Dietz, S.M. Hwang, Evaluating the safety and potential use of a weight-bearing exercise, tai-chi chuan, for rheumatoid arthritis patients, *American Journal of Physical Medicine & Rehabilitation*, 70 (1991) 136–41.
- [6] P.B. Massey, A. Perlman, Lasting resolution of chronic thoracic neuritis using a martial-arts-based physical therapy, *Alternative Therapies in Health and Medicine*, 5 (1999) 104.
