Physical Fitness response to the influence of silambam practice after suryanamaskar practice of school boys
MURUGAVEL KAMATCHI and KODEESWARAN NAGARAJAN

Received 15 December 2020; Accepted 17 February 2021

Abstract: Martial art- yoga dynamic are the systematic sequenced designs of biomechanical movements synchronized with breathing techniques that maximize circulation and energies the whole body system. In order to assess the real facts the investigator made an attempt to examine the impact of silambam practice training after Suryanamaskar practice on physical variables of school boys. To achieve the purpose of the study 30 school boys were selected from Chinmaya Matriculation Hr.Sec.School, Coimbatore. Their aged of the subject ranged from 12 to 14 years. Selected subjects was randomly assigned to two groups group I underwent Silambam practice after Suryanamaskar Practice (n=15) (SPASP), group II acted as control group (CG). The Silambam practice after Suryanamaskar Practice was given to the experimental group for 3 days per week for the period of 8 weeks. The control group did not practice in any training except their routine work. The following variables were measured with standard test items: physical fitness variables Re-action time and cardio respiratory endurance. pre and post test was conducted on separate days with warm up. The re-action time assessed by penny cup test with unit of measurements seconds in time and cardio respiratory endurance assessed by coopers 12minitus run or walk with unit of measurements in meters. To find out the individual effect ‘t’ test was applied at 0.05 level of significant. The result of the present study physical variables speculated significant improvement due to the Silambam practice after Suryanamaskar practice of school boys.

Keywords: Silambam, Suryanamaskar, Reaction Time, Cardio Respiratory Endurance

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1. **Introduction**

Silambam is an ancient martial art of Tamil Nadu. The origin and historical development of Silambam fencing might have begun with the early Dravidians from ancient Tamil Nadu. Tamil Nadu (Southern Part of India) is a land of ancient glory. It has seen the rise and fall of Great Kingdoms - The Chera, Chola, Pandya, Pallava and many others. Each of them has left behind their own valuable culture and art forms. Silambu is a word generally used to denote the sound created by a fast flowing spring, murmur of leaves, the chirping noises of birds etc. It might have been originally used to describe the "whooshing" sound created by the swinging of the long staff and clashing sound of the swords. Thus Silambam became the popular word to describe the martial art that used long staff and various kinds of swords, knives and lances. Some websites give a very incorrect explanation for the word Silambam as silam means ‘hill’ and ‘bam’ means “bamboo” used in the long staff fighting. Bam and bamboo have nothing to do with Tamil language or culture Silambam is closely related to Keralan kalaripayat and Sri Lankan Angampora. It derives from the Tamil word silam meaning "hill" and the Kannada word “bamboo” from which the English "bamboo" originated. The term silambam is referred to a particular type of bamboo from the Kurinji hills in present-day Kerala. Thus silambam was named after its primary weapon, the bamboo staff. The related term ‘silambattam’ often refers specifically to stick-fighting. There are numerous styles of silambam but the Nillaikalakikki discipline (from ‘Nillai’ meaning ‘posture’ and ‘kalakki’ meaning ‘to disturb or shuffle’) is the most widespread style outside India, and is most well known in Malaysia. The styles differ from one another in grip, posture, foot work, length of the stick, etc. Silambam may either be practiced for the purpose of combat (por silambam) or purely for demonstration (alangara silambam). Masters are called Asaan while grandmasters are addressed as periyasaan, iyan or annaavi.

Silambam also has many different types of avoiding an attack like blocking, parrying, enduring, rotary parrying, hammering, kolluvuthal (attacking and blocking simultaneously) and evasive moves such as sitting or kneeling, moving out, jumping high, etc. Against multiple attackers, silambam exponents do not hold out their sticks as they do in single combat. Instead they assume one of the numerous animal stances which makes it difficult for opponents to predict the next attack. An expert of silambam will be familiar with varma adi or marma adi (pressure points) and know where to strike anywhere in the body to produce fatal or crippling effects by the least use of power. In one-on-one combat an expert would slide the stick to opponent’s wrist many times during combat. The opponent may not notice this in the heat of battle until they feel a sudden pain in the wrist and throw the stick automatically without knowing what hit them. When two experts match against each other one may challenge the other that he will hit his big toe. Hitting the big toe can produce crippling effects on the fighter, making them abandon the fight. This is called solli adithal which means "challenging and successfully hitting" (Raj, 1977).
1.1 Hypothesis
The hypothesis argued in this paper is that team school boys can significantly increase the reaction time and cardiorespiratory endurance by combining technical and tactical sessions with Silambam practice after Suryanamaskar practice over a consecutive 8 weeks period.

2. Materials and methods

2.1 Participants
In order to achieve the study forty school boys were selected from Chinmaya Matriculation Hr. Sec. School, Coimbatore and their age ranged between 12 and 14 years. The selected populations were divided into two equal groups consist of 15 each. The group I (n=15) was considered as experimental group and group II (n=15) was considered as control group. The investigator did not make any attempt to equate the group. The experimental group was given Silambam practice after Suryanamaskar practice for three days per week for a period of eight weeks.

2.2 Research Design
The study was formulated as a random group design consisting of pretest, posttest and test following the subjects (n=30) were randomly selected from Coimbatore district. The evaluated parameters were Reaction time (Penny cup test) and cardiorespiratory endurance (coopers 12minutes run or walk). The parameters were measured at baseline and after 8 weeks of Silambam practice after Suryanamaskar practice.

2.3 Training Protocol
The training programme was lasted for 45 minutes per session in a day, 3 days in a week for a period of 8 weeks’ duration. These 45 minutes included 5 minutes warm up and 5 minutes warm up down remaining 35 minutes allotted for training programme. Following the 8 weeks of training programme, the group ceased the training for 4 weeks.

2.4 Statistical Analysis
The collected data on Reaction time and cardiorespiratory endurance due to the effect of Silambam practice after Suryanamaskar practice was statistically analyzed with ‘t’ test to find out the significant improvement between pre & posttest if any. In all cases the criterion for statistical significance was set at 0.05 level of confidence (P < 0.05).

3. Results
All subjects completed the study according to the aforementioned methodology. The 15 training subjects averaged 96% attendance and no injuries occurred from the training program. There were no significant differences in height or weight between groups either before or after the training and detraining periods.
TABLE – I

Computation of ‘t’ ratio on Reaction time of experimental and control group

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>Pre-test</td>
<td>6.47</td>
<td>2.34</td>
<td>6.29</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>5.13</td>
<td>2.20</td>
<td></td>
</tr>
<tr>
<td>Control group</td>
<td>Pre-test</td>
<td>9.75</td>
<td>3.44</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>10.87</td>
<td>3.20</td>
<td></td>
</tr>
</tbody>
</table>

Significant 0.05 level of confidence (2.09)

Table I shows the mean values of pre & post test for experimental group were 6.47 & 5.13 respectively. Since obtained ‘t’ ratio 6.29 was greater than the required table value of (2.09). It was found to be statistically significant at 0.05 levels. The mean values of pre & post test for control group were 9.75 & 10.87 respectively. Since obtained ‘t’ ratio 0.97 was less than the required table value of (2.09). It was found to be statistically insignificant at 0.05 levels.

Figure – I

Bar diagram show the mean value of pre and post test on experimental and control group on Reaction time
Table II

Computation of ‘t’ ratio on Cardiorespiratory endurance of experimental and control group

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>‘t’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>group</td>
<td>Pre-test</td>
<td>1031.00</td>
<td>38.89</td>
<td>17.40</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>1126.00</td>
<td>42.23</td>
<td></td>
</tr>
<tr>
<td>Control group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-test</td>
<td>951.00</td>
<td>45.01</td>
<td>0.74</td>
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<tr>
<td></td>
<td>Post-test</td>
<td>951.31</td>
<td>41.47</td>
<td></td>
</tr>
</tbody>
</table>

Significant 0.05 level of confidence (2.09)

Table II shows the mean values of pre & post test for experimental group were 1031.00 & 1126.00 respectively. Since obtained ‘t’ ratio 17.40 was greater than the required table value of (2.09). It was found to be statistically significant at 0.05 levels. The mean values of pre & post test for control group were 951.00 & 951.31 respectively. Since obtained ‘t’ ratio 0.74 was less than the required table value of (2.09). It was found to be statistically insignificant at 0.05 levels.

**Figure – II**

Bar diagram show the mean value of pre and posttest on experimental and control group on Cardiorespiratory endurance.
4. Discussion

The present study experimented the influence of eight weeks silambam practice after Suryanamaskar practice on the selected parameters of the school boys. The results of this study indicated that silambam practice after Suryanamaskar practice is more efficient to bring out desirable changes over the reaction time and cardiorespiratory endurance of the school boys. Mohanavalli et al., (2013) for twenty four weeks there was significant improved in cardio vascular endurance, and a significant reduction in body weight, BMI, lean body mass, and percent body fat among 40 sedentary college girls due to the influence of silambam training and also study for Syedali et al., (2017) for 16weeks there was significant improvement on motor fitness variables of silambam and kalari training of school boys. Patima et al., (2008) for 6months there was a significant improvement in cardiorespiratory fitness on Suryanamaskar practice a pilot study and Reaction time and cardiorespiratory endurance both equal to the test scores. Hence, it concluded that for reaction time and cardiorespiratory endurance improvement for silambam practice after Suryanamaskar of school boys.

5. Conclusions

From the results of the study and discussion the following conclusions were drawn.

1. Based on the result of the study it was concluded that the 8 weeks of silambam practice after Suryanamaskar practice have been significantly improved Reaction time of schoolboys.

2. The 8 weeks of silambam practice after Suryanamaskar practice have been significantly improved cardiorespiratory endurance of school boys.

Acknowledgements

This study is the research article of and K. Murugavel and N. Kodeeswaran

No grants or financial aids were taken in this Project.

Financial support

There is no financial support.

Conflict of interest

The authors declare no conflict of interest.

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