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## A study on comparative effect of aerobic dance and folk dances on body composition

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### Abstract

The purpose of the study was to determine the comparative effect of Aerobic dance and folk dances training programmes on Body composition of high school boys. Randomly selected 120 high school boys were divided into four equal groups as A, B, C and D. After taking the pre-test for Body composition the training programme was given to experimental groups A, B and C where as the group D was a control group. The experimental group 'A' had undergone the training programme in Aerobic dance, group B had undergone the training programme in Kuthiyottam and group C in Kolkkali, thrice a week for 16 weeks. Two middle tests after 5 weeks and 10 weeks and a post test were conducted. To compare the significance of difference among the three experimental groups and the control group the analysis of covariance was employed. The Scheffe's post hoc test was applied wherever the F-value was found significant, in order to find the significance of difference among the paired adjusted post means. The level of significance chosen was 0.05. It was found that there was significant difference among all the four groups. It was found that the Aerobic dance group showed better improvement in performance than Kuthiyottam, Kolkkali and Control groups. It was also revealed that Kolkkali group showed better improvement than Kuthiyottam and control groups.

**Keywords:** Aerobic dance, folk dances, body composition

### Introduction

Many people believe that there is a kinaesthetic sense which is embedded in our bodies, an aesthetic force, which dance experiences can liberate. Dance can have far-reaching effects on personality and on the concept of self, so that even children can be given an awareness of their bodies as a physical presence and an instrument of communication during dance lessons- an essential part of their education. Children usually have a sense of rhythm, a natural love for rhythmic movement, and an innate creative ability. How extensively all of these qualities are developed depends upon the opportunities a child has, to express them. Those opportunities are provided by a variety of dance forms. Early study of dance may become a foundation for a life long leisure activity. So the time is ripe for the promotion of serious dance education.

Aerobic dance, when planned appropriately for individual participants can be very effective in building cardiovascular endurance and skeletal muscles effectively. Many children and adults have found this type of dancing and exercising amusing as it is accompanied by music. The main objective of dance aerobics, like many form of aerobics is to increase the maximum amount of oxygen that the body can process in a given amount of time. (Kaystoll, Sharon and Marie Beller, Jennifer, 1989) [2]

Kuthiyottam is a form of dance which is performed in the Devi temples of Kerala. Two groups perform kuthiyottam during which one group sings kuthiyottam songs and other group performs kuthiyottam dance movements. This dance demands a lot of physical effort and co-ordination of body. It is performed in temples as a part of the temple festival. This dance is very famous in temples like Attukal, Chettikulangara Devi temple and Kadakkal Devi temple. It is practiced and performed in many other Devi temples throughout the state of Kerala.

'Kolkkali' is one of the most popular rural dances. It is carried out by different religions and castes. So there is a lot of variation between their own traditional kolkkali and it is more popular among the Muslims. This magnificent art needs a lot of skill, practice and the correct body language to carry it out. This dance is supposed to have a link to 'kalaripayattu' as the

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experts of ‘kalaripayattu’ also teach ‘kolkkali’. It has been found by historians that the modern ‘kolkkali’ is somehow related or connected to ‘purakali’. There are many myths among the Hindus about the origin of ‘kolkkali’. It is said that it was played for entertainment during the period of the Yadavas. Another myth says that Dronacharya the teacher of the Pandavas and Kauravas taught them this art form.

Body composition is the relative amounts of lean body tissue (muscle, bone, and water) and fat in the body (Thomas, D.Q, 1988) [1]. Healthy body composition involves a high proportion of lean body tissue and an acceptably low level of body fat, adjusted according to age and sex. People whose body composition is optimal tend to be healthier, to move more efficiently, and to feel better about themselves.

To measure body composition through the measurement of subcutaneous body fat. Grasp the skin fold firmly between the thumb and index finger about one – half inch from the site at which the caliper is to be applied. Since the thickness of the fold reflects the percentage of body fat, it should be great enough to include two thicknesses of skin with intervening fat, but it should not include muscle or fascia. The test administrator may ask the subject to tense the underlying muscles to determine if muscle tissue is included in the fold. While continuing to hold the fold apply the caliper to the fold above or below the finger and slowly release the caliper grip so that full tension is exerted on the fold. Skin fold measurements of Triceps and Calf may be taken. Triceps skin fold is taken from a vertical fold over the triceps muscle, halfway between the acromion and olecranon processes. Calf skin fold is taken from a vertical fold on the medial side of calf. Right foot is placed flat on bench with knee flexed to 90°. The skin fold is grasped just above the largest part of calf girth and the skin fold is measured at the largest part of the girth. Skin folds should be taken on the same side of the body (dominant hand side). Score is the sum of triceps and calf skin folds.

**Objective of the study**

The purpose of the study was to find out the comparative

effect of Aerobic dance, Kuthiyottam and Kolkkali training programmes on Body composition.

**Hypotheses**

Based on the understanding of the literature and the nature of the study the following hypotheses were developed.

1. There will be significant differences among Aerobic dance, Kuthiyottam and Kolkkali groups in the improvement of Body composition.
2. The Aerobic dance group will show better improvement in Body composition than groups involved in Kuthiyottam and Kolkkali training programmes.

**Design of the study**

Randomly selected 120 high school boys were divided into four equal groups as A, B, C and D. After taking the pre-test for Body composition, the training programme was given to experimental groups A, B, and C where as the group D was a control group. The experimental group ‘A’ had undergone the training programme in Aerobic dance, group B had undergone the training programme in Kuthiyottam and group C in Kolkkali, thrice a week for 16 weeks. Two middle tests after 5 weeks and 10 weeks and a post test were conducted. To compare the significance of difference among the three experimental groups and the control group the analysis of covariance was employed. The Scheffe’s post hoc test was applied wherever the F-value was found significant, in order to find the significance of difference among the paired adjusted post means. The level of significance chosen was 0.05.

**Analysis of Data and Discussion of Findings**

To compare the significance of difference among the three experimental groups and the control group the analysis of covariance was employed. The Scheffe’s post hoc test was applied wherever the F-value was found significant, in order to find the significance of difference among the paired adjusted post means. The level of significance chosen was 0.05.

**Table 1:** Analysis of Covariance on Body Composition among Experimental and Control Groups

|   | <b>Aerobic Dance</b> | <b>Kuthiyottam</b> | <b>Kolkkali</b> | <b>Control group</b> | <b>SV</b> | <b>df</b> | <b>SS</b> | <b>MSS</b> | <b>F-value</b> |
|---|----------------------|--------------------|-----------------|----------------------|-----------|-----------|-----------|------------|----------------|
| Adjusted post test means                              | 18.264               | 19.736             | 19.626          | 21.760               | B         | 3         | 186.028   | 62.009     | 123.445*       |
|   |                      |                    |                 |                      | W         | 115       | 57.767    | 0.502      |                |
| * Significant at 0.05 level<br>F 0.05 (3, 115) = 2.60 |                      |                    |                 |                      |           |           |           |            |                |

The statistical results shown in table 25 indicate that the F-value for the adjusted post test means was 123.445. As the obtained F-value was greater than the tabulated F-value (2.60) at 0.05 level of significance, significant difference exists in

the adjusted post test means among the experimental and control groups. The Scheffe’s post hoc test was applied as significant difference existed and the results obtained are presented in the table.

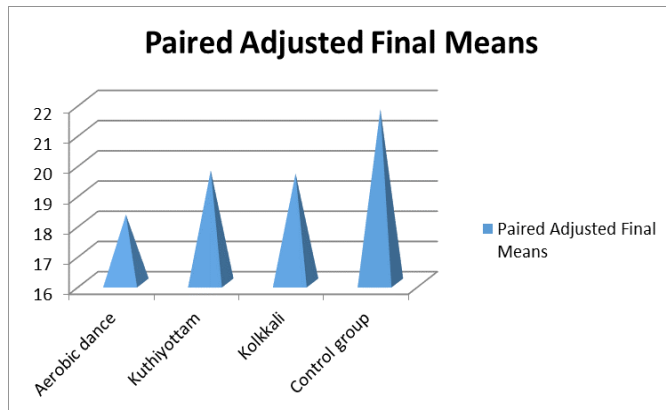
**Table 2:** Scheffe’s Test for Differences in Paired Adjusted Final Means among Experimental and Control Groups on Body Composition

| <b>Aerobic Dance</b>        | <b>Kuthiyottam</b> | <b>Kolkkali</b> | <b>Control Group</b> | <b>Mean differences</b> | <b>Confidence Interval</b> |
|-----------------------------|--------------------|-----------------|----------------------|-------------------------|----------------------------|
| 18.264                      | 19.736             |                 |                      | 1.473*                  | 0.510                      |
| 18.264                      |                    | 19.626          |                      | 1.362*                  | 0.510                      |
| 18.264                      |                    |                 | 21.760               | 3.496*                  | 0.510                      |
|                             | 19.736             | 19.626          |                      | 0.110                   | 0.510                      |
|                             | 19.736             |                 | 21.760               | 2.024*                  | 0.510                      |
|                             |                    | 19.626          | 21.760               | 2.134*                  | 0.510                      |
| * Significant at 0.05 level |                    |                 |                      |                         |                            |

The results in table 26 indicate that the differences in paired adjusted final means between Aerobic dance and Kuthiyottam was 1.473 and the value 1.362 between Aerobic dance and

Kolkkali, 3.496 between Aerobic dance and control group, 2.024 between Kuthiyottam and Control group, 2.134 between Kolkkali and Control group, all of which were

significant as the obtained values were greater than the confidence interval of 0.510 required for the significance. On the contrary the difference in paired adjusted final means between Kuthiyottam and Kolkkali was 0.110 which was less than the confidence interval. This indicates that there was no significant difference between those two groups. The graphical representation of the paired adjusted final means of the experimental and control groups on body composition is shown below.



**Fig 1:** Graphical representation of paired adjusted final means of experimental and control groups on body composition

### Conclusion

It was found that there was significant difference among all the four groups. It was shown that the Aerobic dance group showed better improvement in performance than Kuthiyottam, Kolkkali and Control groups. It was also revealed that Kolkkali group showed better improvement than Kuthiyottam and control groups.

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