

IJPESYS

ISSN:2249-8575

Refereed Research Journal

Volume 1

No. 4

August 2012

INTERNATIONAL JOURNAL OF
PHYSICAL EDUCATION, SPORTS
AND YOGIC SCIENCES

IJPESYS

EDITOR IN CHIEF

PROF. S. K. YADAV

DEPARTMENT OF PHYSICAL EDUCATION

DEVI AHILYA UNIVERSITY INDORE



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International Journal of Physical Education, Sports and Yogic Sciences

Editor in Chief

Dr. S. K. Yadav, Professor
Department of Physical Education
Devi Ahilya University, Indore (M. P.)
Mob - 09826535933
yadavshorya@rediffmail.com

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Editor in Chief

Dr. S. K. Yadav, Professor
Department of Physical Education
Devi Ahilya University, Indore (M. P.)
Mob - 09826535933
yadavshorya@rediffmail.com

VO₂ max among aerobic, Bharathanatyam and Kandyan dancers

S. Sabaananth and V. Gopinath

See end of the article for authors' affiliations

Correspondence to:

S. Sabaananth

Department of Physical

Education & Sports Sciences
Annamalai University (T. N.)**ABSTRACT**

The purpose of this study was to compare VO₂ max among bharathanatyam, kandyan and aerobic dancers. To achieve the purpose ninety (N=90) women dancers were selected from India and Sri Lanka. They were classified into Aerobic dance [(AD)(n=30, from India, practice aerobic dance 60±15 min / day/ 5 days / week over the period of minimum 3 years)], Bharathanatym Dancers [(BD) (n=30, from Sri Lanka, practice bharathanatyam 60±15min / day for 5 days / week over the period of minimum 3 years)] and Kandyan Dancers [(KD)(n=30, from Sri Lanka, practice kandyan dance 60±15 min / day/ 5 days / week over the period of minimum 3 years)]. VO₂ max was assessed for all the selected subjects by Queen's step test, the collected data were statistically treated by using one way ANOVA at 0.05 level of significance. Scheffe's post hoc test was used to find out the paired mean difference. All the three dance groups were significantly differed on VO₂ max. However aerobic dancers had better VO₂ max than the bharathanatyam and kandyan dancers.

Sabaananth, S. and Gopinath, V. (2012) VO₂ max among aerobic, Bharathanatyam and Kandyan dancers *International Journal of Physical Education, Sports and Yogic Sciences* 1(4): 27-28.

Key words: Aerobic, Bharathanatyam, Kandyan, Dance, VO₂ max.

Aerobic dance was designed to improve cardiovascular endurance (1). It involves choreographed routines made up from various dance steps and other movements including walking, running and skipping. It also involves muscle conditioning exercises for the abdominal, legs and arms (2). Aerobic dance is appropriate for the general public since skill and technique are not emphasized (3). **Bharatanatyam**: very popular dance form in South India. And oldest of all classical dance forms. The general etymology of Bharathanatyam is BHAVA (expression) + RAga (music) + TAAla(rhythm) + NATYAM(dance). The variety and style of the dance and musical accompaniment provide to the people tastes and performing them. **Kandyan Dance**: is a dance form that originated in the area called Kandy of the Central hills region in Sri Lanka. But today it has been widespread to other parts of the country. The dance waned in popularity as the support for the dancers from the Kandyan kings ended during the British period. It has now been revived and adapted for the stage, and is Sri Lanka's primary cultural export. Dance is an art form that generally refers to movement of the body, usually rhythmic and to music, used as a form of expression, social interaction

or presented in a spiritual or performance setting. The ACSM defines aerobic exercise as "any activity that uses large muscle groups, can be maintained continuously, and is rhythmic in nature. It is a type of exercise that overloads the heart and lungs and causes them to work harder than at rest (4). Hence the purpose of the study was to compare vo₂ max among aerobic, bharathanatyam and kandyan dancers.

Methodology:

To achieve the purpose ninety (N=90) women dancers were selected from India and Sri Lanka, and their age were ranged between 17 and 18 years. They were classified in to Aerobic dance [(AD)(n=30, from India, practice aerobic dance 60±15 min / day/ 5 days / week over the period of minimum 3 years)], Bharathanatym Dancers [(BD) (n=30, from Sri Lanka, practice bharathanatyam 60±15min / day for 5 days / week over the period of minimum 3 years)] and Kandyan Dancers [(KD)(n=30, from Sri Lanka, practice kandyan dance 60±15 min / day/ 5 days / week over the period of minimum 3 years)]. VO₂ max was assessed for all the selected subjects by Queen's step test (5), the collected data were statistically treated by using one way ANOVA, 0.05 level of significance.

Results:**Table I: ANOVA of VO₂ max among aerobic, Bharathanatyam and Kandyan dancers**

	Groups			Source of Variance	S.S.	df	MSS	'F' value
	AD	BD	KD					
Mean	46.22	45.01	44.11	Between	67.50	2	33.75	10.28*
S.D	2.07	1.63	1.70	Within	286.14	87	3.28	

F_{0.05} (2, 87) = 3.10**VO₂ max among aerobic, Bharathanatyam and Kandyan dancers**

Table II: Mean difference between aerobic, Bharathanatyam and Kandyam dance groups

AD	BD	KD	MD	CI
46.22	45.01		1.21*	1.09
46.22		44.11	2.11*	
	45.01	44.11	0.90	

Table - II shows significant difference between Aerobic (AD), Bharathanatyam (BD) and Kandyam (KD) Dancers on VO_2 max. The result of post hoc test showed that, aerobic dance practice significantly influences the VO_2 max than bharathanatyam and kandyam dancers.

It may indicate the associated dance training out comes could be affected by such difference in duration, intensity and frequency of dance they undergone. Regular dance training is essential for maintaining and developing the dancer's technique and coordination. The energetic demands during these training sessions stand in rather sharp contrast to those which can exist during stage performance. The result also shows that the aerobic dancers have better VO_2 max compare to bharathanatyam and kandyam dancers. Therefore intensity, duration and movement patterns of the dance influence on aerobic power such as VO_2 max, cardio respiratory endurance so on.

The literature indicates that changes in cardio-respiratory endurance, VO_2 max are directly related to the subject's initial fitness level and the frequency, intensity and duration of the training programme. Some aerobic type of activities, have close association with VO_2 max. It has been shown that arm work performed above the head produces a higher VO_2 max than the work performed bellow head level, due to an increased sympathetic tone. In general, dance students demonstrate lower maximal oxygen up-take (VO_2 max) values compared with other athletes. Within the dance world, however, modern dancers have shown higher VO_2 max values than ballet.

Keeness to follow principles associated with sport training, that improve real opportunity to extend the dancer's career by simply applying sports science principles to dance training and performance. An awareness of these factors will assist dancers and their teachers to improve training techniques, to employ effective injury prevention strategies and to improve better physical conditioning. However, any change in the traditional training regimes must be approached cautiously to ensure that the aesthetic content of the dance is not affected by new training techniques. Since physiological aspects of performing dance have been viewed primarily in the context of aerobic, bharathanatyam and kandyam dance, it is generally accepted that people with higher levels of physical activity tend to have higher levels of fitness and that physical activity can improve cardio-respiratory fitness. Nourrey et al. showed in a prospective study

that aerobic exercise improves pulmonary function and alters exercise breathing pattern in children.

Conclusions:

The aerobic, bharathanatyam and kandyam dancers have to undergo special fitness training to improve VO_2 max level for achieve height of their professional dance career as well as better theater performance.

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Authors' affiliations:

V. Gopinath

Department of Physical Education and Sports Sciences, Annamalai University (TN)

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