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COMPARISON OF CARDIO RESPIRATORY ENDURANCE AND VO₂ MAX BETWEEN PROFESSIONAL AND AMATEUR WOMEN BHARATHANATYAM DANCERS.

S. Sabaanath *, V. Gopinath **

ABSTRACT

The purpose of this study was to compare Cardiorespiratory Endurance (CRE) and VO₂ max between Professional and Amateur Bharathanatyam dancers. To achieve the purpose sixty (N=60) women Bharathanatyam dancers were randomly selected and they were classified in to Professional Dancers [(PD) (n=30, practice bharathanatyam 90 to 120 min / day for 5 to 6 day / week over the period of minimum 5 years)] and Amateur Dancers[(AD) (n=30, practice bharathanatyam 30 to 60 min / day/ 2 to 3 day / week over the period of minimum 5 years)] were selected as subjects, their mean age were 17 ± 1.3 years, They were measured CRE (Harvard step test) and VO₂ max (Queen's step test), the collected data were statistically treated by using independent 't' test , 0.05 level of confidence was fixed to test the significance. The result shows that Professional Dancers were better than Amateur Dancers on CRE and VO₂ max. Hence it was concluded that, professional bharathanatyam dancers developed better CRE and VO₂ max than amateur dancers.

Key words: CRE, VO₂ max, Professional Dancers, Amateur Dancers, Bharathanatyam

INTRODUCTION

The urge to move appears to be genetic, beginning in and continuing throughout prenatal and neonatal development. At birth, patterns of movement are in the form of primitive reflexes that are designed to guarantee the infants' survival. (Piaget, 1972, 1990). Every dance, no matter what style, has something in common. It not only involves flexibility and body movement, but also physic. Dance are dependent on social, cultural, aesthetic, artistic and moral constraints and range from functional movement to virtuoso techniques such as Bharathanatyam, Ballet, Aerobic dance and Kandyan Dance .

Dance is a unique form of movement one that inspires creativity, motivation, self-discipline, and self-awareness. It is more than a mere physical movement, dance is aesthetic. Through dance, movement is transformed into a purposeful phrase of action that encompasses physical, emotion, and cognition. Dance uses "the movement of the body in its reactions to the environment" (Vanleena, 1996).

Dancers are not just performing artists; their bodies are also the instruments through which the art is created. The quality of this art, therefore, necessarily depends on the physical qualities

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and skills that dancers possess. The stronger and more flexible a dancer's body, the more capable it is of a wide range of movement. Nearly all professional dancers start training at a young age in order to shape and develop their body correctly. Strength is built up in the right muscles, and the bone-connecting ligaments on which flexibility of the joints is so dependent are lengthened early before they begin to harden.

A good dancer must also possess great coordination, a highly developed kinesthetic awareness, control over weight and balance in motion, and endurance is essential to continued existence of prolonged dance performance to develop awareness of space, a strong sense of rhythm, and an appreciation of music. Particularly in theatrical dance, the dancer must be able to project movement clearly and make its expressive qualities intelligible to the audience. Grace, fluidity, and harmony of body are also frequently desired in the dancer, as is physical beauty. Bharatanatyam: very popular dance form in South India. It is oldest of all classical dance forms in India. The general Etymology of Bharathanatyam is BHAVA (expression) + RAGA (music) + TALA(rhythm) + NATYAM(dance). The variety and style of the dance and musical accompaniment provide to the people tastes and performing them. Many learn as a hobby and few make it as a profession. Whether taken as a hobby or a profession it certainly needs lot of practice, concentration and dedication with physical fitness. The purpose of the study was to compare the CRE and VO₂ max between women Professional and Amateur Bharathanatyam Dancers.

METHODS

To achieve the purpose of this study thirty (n=30) women professional and thirty (n=30) amateur bharathanatyam dance students from Kalabavanam bharathanatyam academy, Jaffna, Sri Lanka were selected and their mean age were 17 ± 1.3 years. Professional dancers (PD) had been dancing 90 to 120 min per day; 5-6 days per wk over a period of minimum 5 yr, and amateur dancers (AD) had been dancing 30 to 45 minutes per day and 2 to 3 days per week over a period of minimum 5 years. Data were collected on cardiorespiratory endurance using Harvard Step Test. [Brouha et al. (1943)] and VO₂ max by Queen's step test [McArdle et al. (1972)]. Each test conducted on one day after another day. The collected data were subjected to statistical treatment using independent "t" test. In all the cases 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

RESULTS

Table – I
COMPARISON OF CARDIO RESPIRATORY ENDURANCE AND VO₂ MAX BETWEEN PROFESSIONAL AND AMATEUR BHARATHANATYAM DANCERS

Variables Name	Group	Mean	SD	SE	t
CRE	Professional Dancer	56.23	6.96	1.27	6.06*
	Amateur Dancer	47.67	3.40	0.62	

Variables Name	Group	Mean	SD	SE	t
VO2 max	Professional Dancer	46.67	2.57	0.47	3.25*
	Amateur Dancer	44.33	2.98	0.54	

*Significant at .05 level of confidence. with df (1, 58) is 2.00

The result shows that professional dancers (PD) were better than amateur dancers (AD) on cardiorespiratory endurance (CRE) and VO₂ max. Hence it was concluded that, professional bharathanatyam dancers have better cardiorespiratory endurance (CRE) and VO₂ max than amateur dancers.

DISCUSSIONS

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 Dance movements may be without significance in themselves, such as in classic dance and folk dance. Bharathanatyam is a salient feature of the aesthetic, artistic and graceful form of dance, and sacred in Indian culture, codifies dance into a series of rules determining the gestures used to depict different themes and emotions.

It may indicate the associated dance training outcomes could be affected by such difference in duration, intensity and frequency of dance they undergone. Regular dance training essential for maintain 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 professional dancers have better CRE and VO₂ max compare to amateur dancers.

The literature indicates that changes in cardiorespiratory endurance, VO₂ 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, there is a close association with VO₂ max (Hemple and wells, 1985). It has been shown that arm work performed above the head produces a higher VO₂ max than the work performed bellow head level, due to an increased sympathetic tone (Parker et-al 1989). According to Hamilton et.al (1989) aerobic dance and circuit training can be intense enough to promote aerobic capacity. In another study improvement in cardiovascular fitness is related to the mode, frequency, duration, intensity, and rate of progression of exercise (Kirkendall DT & Calabrese LH-1983). The data suggest that dance as an activity for promoting fitness and will improve aerobic and physical working capacity. In the present investigation, the same trend was observed. The Professional Dancing group has higher cardiorespiratory endurance (CRE) and VO₂ max than the Amateur Dancing group.

CONCLUSIONS

From the results it was clear that, Professional Dancers were better than Amateur Dancers on cardiorespiratory endurance and VO_2 max. Hence it was concluded that professional dance (PD) practice may have positive influence on health status in respect to cardiorespiratory endurance as well as VO_2 max in women dancers.

IMPLICATION

Bharathanatyam will be recommended to improve and maintain good cardiorespiratory endurance and VO_2 max. Further the professional dancers will undergo some type of aerobic fitness programme for improving and / or maintaining there cardiorespiratory endurance and VO_2 max for excellent theatre performance.

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