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Comparison of Cardiac Function between Professional and Amateur women Bharathanatyam Dancers

S. Sabaanath

Ph .D Scholar

Dept .of Physical Education and Sports Sciences,
Annamalai University, Chidambaram T.N.

V. Gopinath

Associate Professor

Dept. of Physical Education and Sports Sciences,
Annamalai University, Chidambaram, T.N.

T. Thevanthy

Lecturer, Department of Dance,
Ramanathan Academy of Fine Arts,
University of Jaffna, Sri Lanka.

Abstract: The purpose of this study was to compare Cardiac function 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 resting heart rate using Palpating the radial artery for full one minute for each subject and blood pressure using Standardized sphygmomanometer and stethoscope.Before taking heart rate the subjects were asked to lie down in the carpet floor and relax. The resting heart rate and blood pressure were taken during early morning hours 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 RHR, SBP, and DBP. Hence it was concluded that, professional bharathanatyam dancers developed better RHR, SBP, and DBP than amateur dancers.

Key words: RHR, SBP, DBP, Professional Dancers, Amateur Dancers, Bharathanatyam.

Introduction

Every dance, no matter what style, has something in common. It not only involves flexibility and body movement, but also physics. If the proper physics are not taken into consideration, injuries may occur. Definitions of what constitutes dance are dependent on social, cultural, aesthetic,

artistic and moral constraints and range from functional movement to virtuoso techniques such as bharathanatyam. 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. In the early 1920s, dance studies began to be considered an academic discipline. Today these studies are an integral part of many universities' arts and humanities programs. By the late 20th century the recognition of practical knowledge as equal to academic knowledge lead to the emergence of practice research and practice as research.

Movement and Dance

Movement is an essential human characteristic. It is happening everywhere at all times; it is a fundamental fact of life. 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). 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 physicality, emotion, and cognition. Dance uses "the movement of the body in its reactions to the environment" (Martin, 1965).

Physical requirements

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 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 bodies 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. As well as strength and mobility, 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.

Bharath Dancers anatyam

Bharatanatyam very popular dance form in South India. It is oldest of all classical dance forms in India. The general interpretation for the name is BHAVA (expression) + RAGA (music) + TALA (rhythm) + NATYAM (dance) = Bharatanatyam. In India the earliest book discussing dance, the *Natya-sastra* still survives. This work, which is sacred in Indian culture, codifies dance into a series of rules determining the gestures used to depict different themes and emotions. The *bharatanatyam*, a classical dance form based on this treatise. The variety and style of the dance and musical accompaniment provide to the people tastes and performing them. In the modern day scenario it is performed by both male and female artists. 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. The purpose of the study was to compare the Cardiacfunction between professional and amateur bharathanatyam dancers.

Methods

To achieve the purpose of this study thirty female Professional and thirty Amateur Bharathanatyam dance students from Kalabavanambharathanatyamacademy,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 5yr, 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 resting heartrateusing Palpating the radial artery for full one minute for each subject and blood pressure using Standardized sphygmomanometer and stethoscope.Before taking heart rate the subjects were asked to lie down in the carpet floor and relax. The resting heart rate and blood pressure were taken during early morning hours.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 and Discussion

The result shows that PD were better than AD on RHR, SBP, and DBP. Hence it was concluded that, Professional Bharathanatyam Dancers have Lower RHR, SBP, and DBP than Amateur Dancers. 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.

Comparison of Cardiac Function Between Professional and Amateur Female Bharathanatyam Dancers

variable	Group	Mean	SD	SE	‘t’
RHR	PD	68.47	3.81	0.70	5.67*
	AD	77.93	8.32	1.52	
SBP	PD	113.23	5.56	1.01	3.36*
	AD	117.83	5.03	0.92	
DBP	PD	77.17	5.20	0.95	3.12*
	AD	80.50	2.73	0.50	

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

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 RHR and BP compare to amateur dancers.

The literature indicates that changes in cardiorespiratory 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, there is a close association with VO_2 max (Hemple and wells, 1985). It has been shown that arm work performed above the head produces a higher VO_2 max than the work performed below 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 lower resting heart rate (RHR) and blood pressure (BP) than the Amateur Dancing group.

Conclusion

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

Implication : Bharathanatyam will be recommended to improve and maintain good Cardiorespiratory function. Further the professional dancers will undergo some type of aerobic fitness programme for improving and/or maintaining their cardiorespiratory endurance for excellent theatre performance.

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