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Effect of asana and pranayama on selected physiological variables among women players

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Abstract
The purpose of the present study was to find out the effect of Asana and Pranayama on selected physiological variables (resting pulse rate and maximal oxygen uptake (VO_2 max). To achieve these purpose thirty women players from Manonmanium Sundaranar University, Tirunelveli, Tamil Nadu, India served as subjects. These subjects were divided into two groups, Group- I was experimental (n=15) and Group - II acted as control (n = 15). The control group was not engaged in Asana and Pranayama training. The experimental group was engaged in Asana and Pranayama training. The pre and post-test data were analyzed by Analysis of Co Variance (ANCOVA), the process by which pre-test mean differences can be adjusted to the pre-test means. Since, only two groups were involved in this study, the Scheffe's post-hoc test was not used whenever the F- ratio for adjusted post-test mean was found to be significant. In all the cases 0.05 level of confidence was selected to reject the null hypothesis. Asana and Pranayama training showed a significant decrease in resting pulse rate. Asana and Pranayama practices group showed a significant increase in maximal oxygen uptake.

Keywords: resting pulse rate, VO_2 max, asana and pranayama

Introduction

Yoga Asana is an ancient system of breathing practices, physical exercises and postures, and meditation intended to integrate the practitioner's body, mind, and spirit. It originated in India several thousand years ago, and its principles were first written down by a scholar named Patanjali in the second century B.C. The word yoga comes from a Sanskrit word, yukti, and means "union" or "yoke." The various physical and mental disciplines of yoga were seen as a method for individuals to attain union with the divine.

In the contemporary West, however, yoga is more often regarded as a beneficial form of physical exercise than as a philosophy or total way of life. Yoga Asana is the art and science of living and is concerned with the evolution of mind and body. Therefore, yoga incorporates a system of disciplines for furthering an integrated development of all aspects of the individual. When we start the disciplines of Asana we usually begin with the outermost aspect of the physical personality, the physical body. Through the practice of the physical postures, or Asana, the spinal column as well as the muscles and joints are maintained in a healthy and supple state. Subtle massage takes place at the location of different glands, balancing many physiological abnormalities such as hyperthyroid or hypothyroid problems, faulty insulin secretions, and other hormonal imbalances. Pranayama, or breathing techniques, are important not only for supplying fresh oxygen and strengthening the lungs but because they have a direct effect on the brain and emotions.

The creative energies in a constructive way and Women exhibit more self-confidence, self-awareness and self-control. As Asana's popularity grows, more and more avenues of this ancient practice are begin explored. Asana for women student, quite a modern concept, grew out of parents, thinking their children could enjoy some of the benefits of yoga that adult do, such as, improved body awareness, co-ordination and stress relief. Tradition Asana practice is definitely a grown up activity, but Asana is flexible enough to accommodate young student as well, when the teaching is approached in the right way. Such other forms of physical activity are very good and should be introduced, but they are not suitable for all students.

However, even women with physical disabilities can participate in yoga exercises because they are not just fast, energy burning, muscle hardening exercises. They are movements and postures for stretching and toning the muscles, for creating flexibility within the skeletal system and they additionally affect the development and maintenance of healthy nervous and endocrinal system. Yoga believes that the attitude towards circumstances of life has an important influence on the development of not only metabolic and other disorders but also of infectious ones. A disturbed mind lowers the ability of general resistance of the body and creates disintegration among various organs. As a result the body becomes prone to attacks by external organism. A negative psycho physiological disturbance alters the normal rate of circulation, respiration and metabolism. The process may affect the body as whole. Thus various internal organs such as intestine, heart, blood vessels, lungs, bronchioles may also be affected.

All these changes may lead to the change in attitude and behavior of the student. They are times of immense energy, self discovery and exploration of world. They can also be fraught with feelings of isolation, loneliness and confusion. They can be due to various factors relating to physical, emotional, mental and responsible role in bringing up women in a healthy environment which would enable each one to maximize their potential. Schools can be dynamic settings for promoting health, for enabling children to grow and mature onto healthy adults. Yoga is a form of complete education that can be used with all students because it develops physiological variables and intellectual and creative talents. In this study a sincere effort has been made to investigate the effects of Asana and Pranayama on physiological variables among women players.

Objectives

The following are the specific objectives of this study.

1. To find out the effect of Asana and Pranayama training on resting pulse rate and maximal oxygen uptake (VO_2 max)
2. To find out the effect of Asana and Pranayama training decrease in resting pulse rate and Increase in maximal oxygen uptake (VO_2 Max).

Methodology

To achieve the purpose of the study 30 women players from Manonmanium Sundaranar University, Tirunelveli, Tamilnadu, India were selected as subjects and their age ranged between 18 to 24 years. Subjects were selected at random by lot procedure. They were asked to undergo medical checkup and were found to be normal, healthy and fit enough to undergo training. Group - I (experimental group) undergo training (n = 15) and Group - II acted as control (n = 15). The data were collected with the help of Head and Director of Physical Education from Manonmanium Sundaranar University, Tirunelveli, Tamilnadu, India. The investigation reviewed the available scientific literature pertaining to Asana and Pranayama from books, journals, periodicals and research articles. Resorting from the review of literature and discussions with the experts and considering the feasibility criteria of the study and the relevance of the variables of the present study. In the present study Asana and Pranayama is consider as independent variables. The following are dependent variables: Resting Pulse Rate, Maximum Oxygen Uptake (VO_2 max).

Statistical Analysis

The data collected from experimental and control groups prior to and after experimentation on selected physiological variables resting pulse rate and maximal oxygen up take (VO_2 max) were statistically examined for significant differences by applying the analysis of covariance (ANCOVA). Since, only two groups were involved in this study, the Scheffe's post-hoc test was not used whenever the F- ratio for adjusted post-test mean was found to be significant. The level of significance was fixed at 0.05 level of confidence in all the cases.

Table 1: Analysis of covariance for the data on resting pulse rate of experiment and control groups

	Experimental Group	Control Group	SV	SS	df	MS	F- ratio
Pre – Test Mean	69.80	69.40	BG	2.80	1	2.80	0.81
SD	2.10	2.03	WG	96.23	28	3.43	
Post – Test Mean	66.30	69.30	BG	9.89	1	9.89	5.53*
SD	2.91	2.87	WG	50.20	28	1.79	
Adjusted Post Test Mean	65.91	68.41	BG	13.71	1	13.71	7.91*
			WG	46.65	27	1.73	

*Significant at 0 .05 level. Table value required for 0.05 level of significance with df (1, 27) is 4.21

Table 2: Analysis of covariance for the data on maximal oxygen uptake (vo_2 max) of experimental and control groups

	Experimental Group	Control Group	SV	SS	df	MS	F- ratio
Pre – Test Mean	1.65	1.66	BG	0.001	1	0.001	0.104
SD	0.58	0.45	WG	0.152	28	0.005	
Post – Test Mean	2.81	1.69	BG	0.124	1	0.124	22.52*
SD	0.21	0.49	WG	0.154	28	0.006	
Adjusted Post Test Mean	2.78	1.67	BG	0.111	1	0.111	55.01*
			WG	0.054	27	0.002	

*Significant at 0.05 level. Table value required for 0.05 level of significance with df (1, 27) is 4.21

Results and Discussion

The results of the study indicates that significant difference exist among the post and adjusted post test means of experimental and control groups on resting pulse rate and Increase in maximal oxygen uptake (VO_2 Max) among women players. The result of the study indicates that all the experimental groups significantly differed when compared to the control group on resting pulse rate and Increase in maximal oxygen uptake (VO_2 Max).

Dr. Deba Prasad Sahu, 2016 [13] find that the Asana and Pranayama proved to be effective in improving performance in breath holding capacity. Mukesh Kumar Mishra, Ajay Kumar Pandey, and Shivendra Dubey, 2015 [11] are stated that it is on the basis of the findings it was concluded that the yogic training may be responsible for the improvement of selected physiological variables like resting heart rate and vital capacity. Yoga advocates unselfishness and enormous love. Yoga advocates virtue and patience. Yoga additionally gives gladness, ground-breaking tonic for the mind, masculinity, considerateness with the limit with respect to block attempt and self-examination. The consequences of the examination demonstrate the adequacy of yogasanas in physical fitness, physiological systems and psychological effectiveness of Secondary school students. The control group posttest means score demonstrates that the physical training alone insufficient to improve the psychological proficiency. In the experimental group all the chose variables were altogether improved in some degree and it instruct us that yoga training is valuable to everybody in especially sports people to accomplish the higher exhibition level in light of the fact that the chose variables in the examination were progressively identified with the sports men as well. From the investigation it is accepted that the yoga training isn't gainful for psychological advancement yet additionally physiological and physical fitness improvement. It is reasoned that yogic practices group observed to be superior to anything aerobic exercises group in improving breath holding time, resting heart rate, systolic blood pressure, diastolic blood pressure (Santhosha M. S.and R. Srinivas, 2019) [14]. The yogic practices had positive impact on resting heart rate and breath holding time among school students' players (Dr. K. Divya, 2017) [12].

Conclusions

The current study highlights on Asana and Pranayama training among women players. The present study revealed that

1. Asana and Pranayama training group showed a significant decrease in resting pulse rate.
2. Asana and Pranayama practices group showed a significant increase in maximal oxygen uptake (VO_2 Max).

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