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EFFECTS OF PRACTICING YOGASANAS AND PHYSICAL TRAINING ON SELECTED PHYSIOLOGICAL VARIABLES

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ABSTRACT

The study was intended to substantiate the relative effects of yogasana practices and physical training on selected physiological variables. To achieve the purpose sixty male students aged 15 through 18 years were selected as subjects from Govt. Junior College, Ponnalur, Prakasam District, Andhra Pradesh. The subjects selected were equated on the basis of their cardiorespiratory endurance and segregated them into two groups: Group I – yogasana practice group and Group II – physical training group of thirty subjects each. The criterion variables confined to this study were systolic blood pressure, diastolic blood pressure and pulse rate. The experimental programme is five days a week for eight weeks in the morning session. The one-way analysis of variance was used to test the statistical significance. The results of the study reveal that there was no significant difference among the yogasana practices and physical training on systolic blood pressure, diastolic blood pressure and pulse rate. It suggests that practicing yogasanas is better as compared to isometric exercise training in improving the blood pressure and pulse rate.

Keywords: yogasanas, isometric exercise, blood pressure, pulse rate.

Introduction

The origins of yoga have been traced as far back as the ancient rishis, 8000 years ago [1]. Over many centuries different forms of yoga developed that have been used to restore and maintain health and to elevate self- awareness and consciousness.

In India, proper diet and physical activity were known to be essential principles of daily living. The *Ajur Veda*, a collection of health and medical concepts verbally transmitted as early as 3000 B.C., developed into Yoga, a philosophy that included a comprehensively elaborated series of stretching and flexibility postures. The principles were first codified in 600 B.C. in the *Upanishads* and later in the *Yoga Sutras* by Patanjali sometime between 200 B.C. and 200 A.D.

Yoga is one of the six systems of Indian Philosophy. It was collected, coordinated and systematised by patanjali in his classical work, the yoga sutras. There are various systems of yoga to

catering the needs of the different types of people to bring about the transformation of the individual. One of the important systems of yoga is raja yoga. It is the royal yoga, because the practitioner becomes the ruler of the mind. Patanjali enumerated eight limbs or stages of yoga. On contrary, the ancient Greek ideals of exercise and health have influenced the attitudes of modern western culture toward physical activity. The Greeks viewed great athletic achievement as representing both spiritual and physical strength rivaling that of the gods [2]. In the classical-era Olympic Games, the Greeks viewed the winners as men who had the character and physical prowess to accomplish feats beyond the capability of most mortals. Although participants in the modern Olympic Games no longer compete with the gods, today's athletes inspire others to be physically active and to realize their potential an inspiration as important for modern peoples as it was for the ancient Greeks. Throughout much of recorded western history, philosophers, scientists, physicians, and educators have promoted the idea that being physically active contributes to better health, improved physical functioning, and increased longevity.

In the middle of the 20th century, recommendations for physical activity to achieve fitness and health benefits were based on systematic comparisons of effects from different profiles of exercise training [3-5]. In the 1960s and 1970s, expert panels and committees, operating under the auspices of health- or fitness-oriented organizations, began to recommend specific physical activity programs or exercise prescriptions for improving physical performance capacity or health [6-8]. These recommendations were based on substantial clinical experience and on scientific data available at that time.

It is a physiological fact that the human organism needs stimulating exercise. When the whole body is subjected to regular muscular activity, requiring vigorous stress on the heart, lungs and muscles, the general efficiency of physiological functions is being improved. The body responds to physical activity in ways that have important positive effects on musculoskeletal, cardiovascular, respiratory, and endocrine systems. Thereby, the study was intended to substantiate the relative effects of yogasana practices and physical training on selected physiological variables.

Methodology

Selection of the Subjects and Variables

In order to achieve the purpose of study sixty male students aged between 15 years and 18 years were selected as

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subjects from Govt. Junior College, Ponnalur, Prakasam District, Andhra Pradesh. Prior to experimental treatment, the subjects selected were equated on the basis of their cardiorespiratory endurance and segregated them into two groups (*Group I – yogasana practice group; Group II – physical training group*) of thirty subjects each. The criterion variables confined to this study were systolic blood pressure, diastolic blood pressure and pulse rate. These criterion variables were assessed a day after the experimentation with yogasana practices and physical training for eight weeks.

Training programme

The subjects were subjected to engage in the respective exercise programme five days a week for eight weeks in the morning session. The yogasana practice group performed the asanas in sitting (Padmasana, Yogamudra, Vakrasana, Vajrasana, Paschimottanasana) supine (Shavasana, Sarvangasana, Halasana) and prone (Shalabhasana, Dhanurasana, Makarasana) positions. During the first week, each asana was performed twice for thirty seconds of holding the asana position and thereafter the duration of holding the exercise position is being increased by 10 seconds for every week. During the fifth through eighth week of the training period, the each asana was performed thrice, but the asana position was held corresponding to that of the first four weeks. Asanas were practiced very slowly without straining the muscles and joints, with ample period of time that was not stipulated between asanas for relaxation. The physical training group performed isometric exercises (Plank bridge, Breakfast table biceps, Isometric squats, Tea table triceps, Side bridge, Armchair forearms, Door frame shoulder press, Isometric leg extensions, Isometric hip extensions, Isometric hip abductions) during each the five sessions in a week for eight weeks, with the training load and recovery as specified in Table I.

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Table I - Training Schedule

Week	Duration of Isometric Exercise (in seconds)	No. of Sets	Recovery between Exercise (in seconds)	Recovery between Sets (in minutes)
I	20	2	10	2
II	30			
III	40		15	3
IV	50			
V	20	3	20	4
VI	30			
VII	40		25	5
VIII	50			

Statistical Techniques

The one-way analysis of variance (ANOVA) was computed for determining the variation on selected physiological variables between yogasana practices and physical training groups. The level of confidence was fixed at 0.05 for significance.

Results of the Study

The collected data on systolic blood pressure, diastolic blood pressure and pulse rate of both experimental groups have been statistically analysed and presented in Table II.

Table II: Analysis of Variance for the Data on Selected Physiological Variables

Variable		Asanas Training	Physical Training	Source of variance	SS	df	MS	F
Systolic blood pressure	Mean	113.13	115.2	Between	3.52	1	3.52	1.72
	S.D	5.22	6.88	Within	118.69	58	2.047	
Diastolic blood pressure	Mean	75.6	77.93	Between	1.236	1	1.236	3.43
	S.D	3.69	5.84	Within	20.9	58	0.36	
Pulse rate	Mean	69.9	71.2	Between	0.158	1	0.158	1.12
	S.D	4.78	4.74	Within	8.182	58	0.141	

Table value required for significance at df 1 and 58.is 4.006

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Table II demonstrates that the obtained F ratio of 1.72, 3.43 and 1.12 respectively for systolic blood pressure, diastolic blood pressure and pulse rate were less than the required table value of 4.006 for the degrees of freedom 1 and 58. It reveals that statistically significant variation didn't exist in the effects of yogasana practices and physical training. The findings of this study implies that yogasana practices is better in enhancing the selected physiological variables confined to this study as compared to physical training involving isometric exercises.

Discussion on Findings

The results of the study reveal that there was no significant difference among the yogasana practices and physical training on physiological variable such as systolic blood pressure, diastolic blood pressure and pulse rate. Some of the researchers [9-10]. observed significant reduction in systolic and diastolic blood pressure in their studies. The reductions in systolic blood pressure with isometric exercise training conditions is obvious, and it is similar to those reported previously [11]. Wiley *et al.* (1992) [11] suggested that the observed reductions in blood pressure following isometric exercise training might be associated with baroreceptor resetting after repeated exposure to the established pressor response to isometric contractions [12-14].

Conclusions

On the basis of the results of this study, we conclude that practicing yogasanas is better as compared to isometric exercise training in improving the blood pressure and pulse rate, though non-existence of statistically significant difference between these experimentation variables persists.

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