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The Effects of Pranayama Practice on Selected Physiological and Psychological Parameters of Inter-Collegiate Athletes

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ARTICLE DETAILS

Research Paper

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ABSTRACT

The study's objective was to investigate the effects of pranayama practice on specific physiological and psychological characteristics in collegiate athletes. To achieve the goals of the study, thirty intercollegiate athletes from Rajiv Gandhi College of Arts and Science in Puducherry, India, were selected at random. The subjects ranged in age from eighteen to twenty-four. The participants were arbitrarily divided into two groups. The experimental and control groups each contained fifteen people. For a total of twelve weeks, the experimental group practiced pranayama five days a week, for a maximum of one hour per session. The control group did as they normally were, receiving no further instructions. There were pre- and post-tests given to each group. Participants in both groups underwent tests on particular physiological and psychological parameters before and after the practice session. Analysis of covariance (ANCOVA) was used to examine the collected data at a significance level of 0.05 in order to determine the statistical significance of differences. The results show that pranayama practice significantly improved several physiological and psychological parameters when compared to the control group.

Introduction

Pranayama is the practice of controlling breathing. The term "prana" denotes the life force or breath of the body. Deeper down, prana represents life force or vitality and "ayama" signifies control. Pranayama means control of the breath. By practicing pranayama, you can achieve physical and mental well-being by balancing the flow of prana energy. In his commentary on the Yoga Sutras, Patanjali explained pranayama as a means of enlarging one's consciousness. He emphasizes the need of holding one's breath as a technique for achieving samadhi. Furthermore, Hatha yoga incorporates eight distinct pranayamas that promote both physical and mental health. Five types of prana are used by the body to perform various pranic activities: prana, apana, vyana, udhana, and samana. The two that are most important are prana and apana. Prana flows above, and apana flows below. By maintaining equilibrium between these pranic activities, pranayama practice supports mental and physical well-being.

Based on how quickly they breathe, they are split into three groups:

1. Calm breathing is defined as effortless, natural, and smooth breathing.
2. Deep breathing is the deliberate slowing down of breathing to extend its duration.
3. Intentionally raising your breathing rate to achieve rapid breathing is known as rapid breathing.

There are three basic steps to any pranayama breathing technique you practice:

a) Purak (inhalation through the nose);

b) Kumbhak (hold); and

c) Rechak (exhalation).

Types of Pranayama Exercises

1. Alternative Nostril Breathing, or NadiShodhana
2. Cold Breath (Sitali Pranayama)
3. Ocean Breath, or Ujjayi Pranayama,
4. Brahmari Pranayama (Bulbul's Breath)
5. Breath of the Bellows, Bhastrika Pranayama
6. Viloma Pranayama (Contrary to the Waves)
7. Breath of the Luminous Skull or Breath of Fire is the name of the Kapalbhati Pranayama.

The physical and mental benefits of pranayama have been demonstrated by science. Controlled movement and relaxation work the diaphragm and abdominal muscles well in this exercise. Heart, lungs, and digestive system (stomach, liver, etc.) are massaged and revitalized. Including the spinal cord, spinal

nerves, endocrine and neurological systems. Pranayama practitioners have vitality, a glowing face, sparkling eyes, a sharp memory, and a focused mind when they practice consistently and on time. Many chronic diseases can be relieved and mental purity can be increased by regular, systematic pranayama practice. The lungs, heart, liver, and other essential internal organs gain function and performance from pranayama. It gives blood its necessary nervous energy for a variety of bodily processes while also increasing oxygenation and purifying the blood.

Statement of the Problem

The aim of the research was to examine the effects of pranayama practice on specific physiological and psychological variables in intercollegiate athletes.

Hypothesis

Pranayama practice was expected to produce significant improvements in both physiological and psychological parameters.

Methodology

The purpose of the study was to find out how pranayama training improves specific physiological and psychological traits in intercollegiate athletes. Thirty student athletes from Puducherry, India's Rajiv Gandhi Arts and Science College were chosen as study participants. They were split up into two groups of equal size. For each group, there were fifteen people. For twelve weeks, Group I practiced pranayama five days a week. Group II functioned as the control group, continuing with their usual daily activities in the absence of any additional instruction. The criteria variables were the parameters that were selected, which included aggression, anxiety, resting pulse rate, and breath-holding time. The dependent variables were evaluated using the items from the standardized test. The radial pulse rate method was used to estimate the resting pulse rate, and a stopwatch was used to record the breath-holding duration. Dr.Laitha Satish's stress questionnaire was used to measure stress, and Taylor's Manifest anxiety scale was used to measure anxiety. Both before and after the experimental period, the data were gathered. Analysis of covariance was used to analyze the data related to the variables in this study (ANCOVA). For every instance, the confidence level was fixed at 0 points.

Experimental Design

Pre- and post-tests were part of the randomized group design used to recruit participants for this study. A total of thirty collegiate athletes were split into two groups at random. Pranayama was practiced by the experimental group, while no instruction was given to the control group. For twelve weeks, the experimental group engaged in five days of pranayama practice.

Statistical Techniques

An analysis of covariance (ANCOVA) was employed as a statistical technique to ascertain whether the dependent variables' pre- and post-test data differed significantly. At 0.05 was chosen as the significance level.

Table - 1

Analysis of Covariance on Selected Physiological and Psychological Parameters of Pranayama Practice and Control Groups

Variables	Groups	Mean	Sources of Variance	Sum of Square	df	Mean Square	F - ratio
Breath Holding Time	Pranayama Group	37.66	Between	146.26	1	146.26	27.23*
	Control Group	33.24	Within	145.003	27	5.37	
Resting Pulse Rate	Pranayama Group	68.32	Between	257.65	1	257.65	51.72*
	Control Group	74.28	Within	134.51	27	4.98	
Anxiety	Pranayama Group	18.75	Between	212.80	1	212.80	4.84*
	Control Group	22.96	Within	1186.48	27	43.94	
Stress	Pranayama Group	21.65	Between	140.83	1	140.83	5.05*
	Control Group	25.38	Within	753.47	27	27.91	

Significant at 0.05 level.

(Required table value for significance at 0.05 level of confidence for df a and 27 is 4.21).

The results of the study showed that there were significant differences in breath holding time, resting heart rate, anxiety, and stress between the pranayama and control groups. Upon examining the table, we can observe that the adjusted post hoc test means have "F" ratio values of 27.23, 51.72, 4.84, and 5.05, in that order. For degrees of freedom 1 and 27, the computed value surpasses the 4.21 table value at a confidence level of 0.05. There are notable differences in breath holding time, resting heart rate, anxiety, and stress between the pranayama and control groups, as indicated by the obtained "F"

values, which are higher than the table values. Comparing the pranayama practice group to the control group, the former demonstrated significantly better levels of stress, anxiety, and resting heart rate as well as longer breath holding time.

Discussion on Findings

Research have demonstrated that pranayama practice improves psychological and physiological parameters, including stress and anxiety, as well as physiological parameters like breath holding time and resting heart rate. The results align with those obtained by K. Divya (2017) discovered that school athletes benefited from yoga practice. Furthermore, these results align with those of E. Amuthan (2015), which shows a significant improvement in physiological indicators with asana and pranayama training.

Conclusion

There were specific experimental limitations applied when conducting the study. Drawings from the data included the following conclusions:

1. Anxiety, stress, resting pulse rate, and breath holding time all significantly improved after twelve weeks of pranayama practice when compared to the control group.
2. In terms of breath-holding duration, resting pulse rate, anxiety, and stress, the pranayama practice group outperformed the control group.

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