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A Study of the Effect of Pranayama and Asanas on Heart Rate of Football Players

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Abstract: To study the of football players effect on heart beat through training of Pranayama and Asanas. Improvement in heart rate was observed in the selected students after taking training in Pranayama and Asanas. The main objective of this research was to study the effect of training in Pranayama and Asana on the heartbeat, breath holding capacity and lung capacity of boys. The physiological variables like heartbeat are important. selection of samples, methods of measurement, reliability of the subject and separation of data have been shown. This study included football player from the tribal area of Southern Rajasthan. In this study, boys studying at school level were selected. The age of the selected girls was between 14 and 16 years.

Introduction - The need of physical capacity is very important for a normal person in his daily life. Physical capacity measures the activity level and ability of a person to face a situation. This raises the question that what is physical capacity, the answer to this is that in physical education, physical capacity is that which can be used to perform daily tasks enthusiastically and successfully without getting tired and can also entertain oneself in leisure time, is called physical capacity. Physical capacity and physical activities can be increased by exercise and yogic activities to be carried out for a long time. Pranayama is very important for the internal purity of the body and mind, Pranayama becomes necessary for the purity of the mind, to remove the disorders of the mind. How important is the primary role of Pranayama, it is to inhale and exhale through the right and left nostrils, this process is done through two routes, the flow of Prana in the right nostril is called Surya Nadi, and the flow of Prana in the left nostril is called Chandra Nadi, after the flow of Prana in the right and left nostrils mix and the third flow of Prana is formed, which is called Sushumna Nadi. Pranayama is the science of breathing. It is an axis around which the wheel of life revolves. According to the science of yoga, the age of a person is not measured by years, but by the count of breaths. This is the reason why Yogis breathe in a slow, rhythmic manner. The life force is strengthened by the process of breathing, the pulse remains calm, the cravings and desires are reduced and the door to liberation starts opening by conquering the mind. Concentration increases. If Pranayama is practiced in the wrong way, then one may have to face many problems like arthritis, asthma, bruises, etc. It takes more time to breathe deeply slowly. Desires are reduced by practicing Pranayama, due to which the divine light inside the body shines with full glory. Five thousand years ago, when people sat to worship gods and goddesses or to meditate, they used to sit in lotus position keeping all the body parts loose and keeping a calm mind and one-pointed mind. This type of sitting and other different types of muscle exercises were done as yogasanas. Yoga and yogasana are two different activities. According to religious beliefs, yogasanas should be done to attain salvation. Physical activities to increase the capacity of both body parts and muscles in which different types of postures and asanas are used. To keep the body healthy, all types of old and new exercises done in akhadas, health club exercises, games played in the field, all these physical activities are done to keep humans healthy.

Review of literature:

Stark (1990) in his study worked on achieving physical capacity through strength, flexibility, blood circulation endurance. For this study, blood circulation endurance test was used. Improvement was seen in the final test data as compared to the previous test data. 'J' test was used to know the difference between the pre-test and final test mean. At the end of the study, as a conclusion, aerobic exercise played an important role in the development of strength, flexibility, blood circulation endurance of the legs. Calisthenic and small sports activities are useful for leg strength and flexibility. Difference was seen in flexibility and blood circulation endurance due to aerobic exercise.

Chaudhary (1998) in his study did research work on the effect of yoga and physical fitness on the variables of physiology subject. In this study, 30 male students were selected by random method. According to the subject, the

subjects were divided into yoga group, physical fitness group and control group. In this study, the effect of yoga and physical fitness on physiological variables was to be found out. Three experimental groups were given training for 10 weeks. For this study, percentage of body fat, resting heart rate, vital energy was selected for measurement. Co-variance separation was used to find the difference between pre-test and final test. Resting heart rate, physical fitness training group proved to be the best. Yoga group was more effective than other groups in vital energy.

Ravish Bhatt (2003) in his study did research on the effect of physical fitness through yoga and pranayama on physiological variables. In this study, 40 male students of 11 to 12 years of Dhyan Dhara Vidyalaya, Sadra were selected randomly and divided into two groups. Two groups of 20 students each were formed. The first group was given training in yoga and pranayama for 45 to 60 minutes for 8 weeks. The second group was the control group. Its findings are as follows - improvement was observed in variables such as vital force and breath holding capacity, flexibility, speed etc.

Chandrakant J. Vidhya (2003) in his study did a comparative study of the physical ability of students of Siddi tribal and other castes. In this study, 50 Siddi tribal and 50 children of other castes were selected. Children of 15 to 18 years of age were selected by random method. For measuring physical ability, IIT-JEE Youth Fitness Test was used. In which the following components were included - pillar muscle strength, endurance, agility, leg muscle strength, blood circulation, dog endurance, speed. Its conclusions are as follows- The students of tribal caste were found to be more physically capable in all types of activities as compared to the students of other castes.

Research objective: To study the of football players effect on heart beat through training of Pranayama and Asanas.

Hypothesis: There is no significant difference of football players on heart rate by training in Pranayama and Asanas.

Research Methodology : The main objective of this research was to study the effect of training in Pranayama and Asana on the heartbeat of boys. The physiological variables like heartbeat, breath holding capacity and lung capacity are important. In this chapter, selection of samples, methods of measurement, reliability of the subject and separation of data have been shown.

This study included football players from the tribal area of Southern Rajasthan. In this study, boys studying at school level were selected. The age of the selected boys was between 14 and 16 years.

Outline of Subjects

Sequence	Group	Type of Training	Subjects
1.	Pranayama Group	Pranayama	20
2.	Asana Group	Asana	20
3.	Controlled Group	Free from Training	20
Total	60		

The following measurements will be used for this exercise.

Measurement Method

S.	Variable	Test	Measurement
	Heart beat	at rest blood pressure and pulse rate monitor near the pulse	Digital

Test Method (Test Methodology)

In the present study, training program was used for collection of data to obtain information about physical capacity, validity, reliability and definite form.

Reliability of Instruments (Standardized Instruments and Standardized Instruments)

Standardized instruments were used in the measurement method. Which were used after fulfilling the criteria of reliability.

In this study, 20 subjects were selected in each group by dividing them into two parts as experimental group and control group.

After selection, they were divided into Pranayama group, Asana group and control group.

(Planning of Study)

Plan of the Study (System and Pattern)

In this exercise, a total of 60 girls were selected as sample. Random method was used in the selection process. The selected boys were divided into three parts and divided into two experimental groups and one control group. The number of girls in each group was kept 20. There was a Pranayama group, Asana group and a control group. The groups of Pranayama and Asanas were given practical training for one week. After training in the selected Pranayama and Yogasanas, data was collected through pre-test and final test to measure the heartbeat, of the boys of both the groups.

(Test Administration and collection of Data)

Before starting the training, data was collected by conducting a pre-test and testing the selected variables. After that, the data was collected by conducting a final test of the experimental group and the control group.

(Hart Rate)

Heart Rate (HBT)

The objective was to measure the heart rate.

Equipment, Tools and Facilities (Thumbprint, Electronic Watch).

Methodology (Methods)

To measure the pulse rate, the heart rate of the selected boys was counted by placing a finger on the pulse at rest. It was noted.

The counting time was kept for one minute and the heart rate was counted in one minute.

Standard score 72/1-minute Healthy score

Rules to be kept in mind

Special care was taken for the selected boys that the measurement should be done in a relaxed state. The correctness of the measurement was checked by taking the advice of a doctor as an expert regarding the time of measurement and the equipment used.

Note: The help of a doctor was taken as an expert.

Statistical Techniques

F test will be used to explore physical aspects. In this amendment, mean standard cum deviations (one way analysis of covariance**)** will be used; So that it can be evaluated through the SPSS. Computer clean ware tools can be used to use calculation.

Table 1 (see in next page)

The table 1 shows the data of pre-test and post-test mean and co-deviation statistics FF ratio. According to that, the F ratio of pre-heart rate test mean (Pranayama = 79.533, Asana = 77.267, Control = 77.067,) was found to be 0.951, which was not significant at 0.05 level with the table value. Due to which the division of students of experimental group and control group was successful.

The F ratio of final test mean of all the three groups (Pranayama = 73.6, Asana = 70.333, Control = 77.067,) was found to be 5.169', which was significant at 0.05 level with the table value. (Pranayama = 72.186, Asana = 70.951, Control = 77.862,) was found to be 21630 The mean difference between the mean and the training was found to be 3.162. This was found to be significant at the 0.05 level with the table value (3.162). The F-ratio showed a significant difference between the means. This proves that the training given was significant. In order to find out the difference between the means of the final data, in which group the training of pranayama and asanas was effective, significance was found with partial difference between the corrected means. This is shown in Table 2.

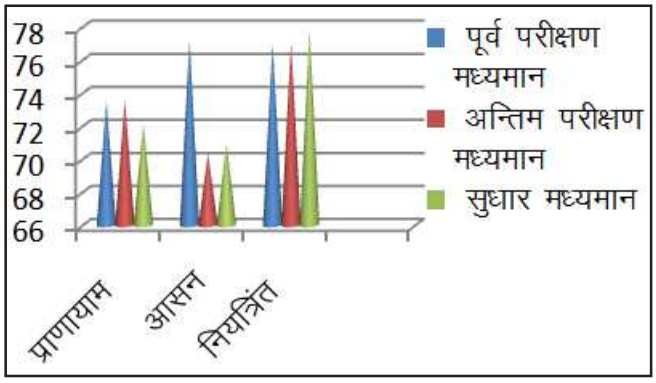
Table – 2: Table showing the difference between the experimental and control groups in heart rate test

Test mean			Mean	
Pranayama	Asana	control group		
72.186	70.951		1.235	2-253
72.186		77.863	5.678*	
	70.951	77.863	6.913*	

Level of significance 0.05 level

In the above table 2, the difference between the mean of the sum of two experimental groups and a control group can be clearly seen for the heart rate test. The difference between the mean shown in the above table and the difference between the groups of Pranayama and Asana, Pranayama and control, Asana and control is shown. It is easy to understand with partial difference how much continuous improvement was seen in which group after training. The significant effect of the experiment was not seen between the two experimental groups. But, in comparison to the control group, the significant effect of the experiment was seen on both the experimental groups.

Research discussion: This makes it clear that due to Pranayama and Asana, when the heart rate of the subjects was tested, improvement was seen in the Pranayama and Asana training group as compared to the control group. Improvement was seen in the heart rate of the students selected for the eight-week training of Pranayama and Asana.



Graph 01: Table showing difference between heart rate test experimental and control group

Conclusions: Improvement in heart rate was observed in the selected students after taking training in Pranayama and Asanas.

Suggestions and Recommendations:

1. This type of research can be done on players of any sport.
2. This type of research can be done on players of different ages.
3. This type of research can be done at different levels of school and college.
4. This type of research can be done by selecting the variables of psychology.
5. This type of research can be done using nutritious diet and training methods of Yoga and Pranayama and Asanas.

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Table 1: Heart rate test co-variation between experimental and control group

testsmean	group			deviation co-deviation				
	Pranayama	asanas	control	(SS)	df	MSS	F	
Pre-test	79.533	77.267	77.067	A	56.331	2	28.156	0.951
				W	1243.6	42	29.651	
Post-test	73.6	70.333	77.067	A	340.133	2	170.067	5.169*
				W	1381.87	42	32.902	
Difference	72.186	70.951	77.863	A	404.687	2	202.344	21.688*
				W	382.527	41	9.330	

Level of significance 0.05 level FF = 0.05 (2.42) = 3.220 – (2,41) = 3.226

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