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Influence of yogic practices on resting pulse rate and vital capacity among inter collegiate soccer players

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Abstract
The purpose of the study was find out the influence of yogic practices on resting pulse rate and vital capacity among inter collegiate soccer players. To achieve the purpose of this study, 20 men inter collegiate soccer players were randomly selected as subjects from the V.O. Chidambaram College, Tuticorin, Tamil Nadu, India. Their age ranged from 18 to 23 years. The selected participants were randomly divided into two groups such as group 'A' yogic practices (asana, pranayama, meditation) (n=10) and group 'B' acted as control group (n=10). Group 'A' underwent yogic practices for five days per week and each day a session lasted from forty five minutes to sixty minutes increasing week by week for six weeks of period. Control group was not exposed to any specific training but they were participated in regular activities. The resting pulse rate was assessed by Radial artery pulse methods (in counts) and vital capacity was assessed by Spiro meter test (in liters) were selected as variables. The pre and post tests data were collected on selected criterion variables prior and immediately after the training program. The pre and post-test scores were statistically examined by the dependent 't' test and Analysis of co-variance (ANCOVA). The level of significant was fixed at 0.05 level. It was concluded that the yogic practices group had shown significantly improved in resting pulse rate and vital capacity. However the control group had not shown any significant improvement on resting pulse rate and vital capacity.

Keywords: yoga asana, resting pulse rate, vital capacity, soccer players

1. Introduction
Yoga is an ancient Indian philosophical and religious tradition discipline designed to bring balance and health to the physical, mental, emotional, and spiritual dimensions of the individual. "Yoga" means union of our individual consciousness with the Universal Divine Consciousness in a super-conscious state [1].
People thought that yoga is only a collection of various stretching exercise and postures to limber up the body, but it is more than that. Yoga includes breathing technique, meditation, visualization, progressive relaxation practices, self-analysis, and altruism. These techniques lead to one's separation from his physical self. Yoga is a powerful tool for achieving union and healing. Through yoga our awareness will increase, so we can easily recognize what is happening inside and outside the body in all situations. According to that can modify our behavior and remove all the drawbacks in our life. Yoga poses helps one's body and mind, thus enabling us to experience a sense of relaxation, peace and joy [2].
Iyengar, 1981 describes the yoga science of breathing is called pranayama. Oxygen is the most vial nutrient to our body. It is essential for the integrity of the brain, nerves, glands and internal organs. It is a systematic exercise of respiration, which makes the lungs stronger, improves blood circulation makes the man healthier and bestows upon him the boon of a long life. It aids the respiratory system function at its best whereby the life force can be activated and regulated in order to go beyond one's normal boundaries or limitations and attain a higher state of vibratory energy. Menon, 1984 said the peak expiratory flow rate measures how fast a person can breathe out (exhale) air. The number of movements indicative of inspiration and expiration per unit time is respiratory rate. Exercise increases the number, while rest diminishes it. The lower the resting respiratory rate is healthier the person [3].
Soccer players need good vital capacity and low resting pulse rate and it shows better fitness and support improve the performance.

2. Purpose of the Study
The purpose of the study was to find the influence of yogic practices on resting pulse rate and vital capacity among inter collegiate soccer players.

3. Methodology
To achieve the purpose of this study, 20 men inter collegiate soccer players were randomly selected as subjects from the V.O. Chidambaram College, Tuticorin, Tamilnadu, India. Their age ranged from 18 to 23 years. The selected participants were randomly divided into two groups such as group 'A' 'yogic practices' (asana, pranayama, meditation) (n=10) and group 'B' acted as control group (n=10). Group 'A' underwent yogic practices for five days per week and each day a session lasted from forty five minutes to sixty minutes increasing week by week for six weeks of period. However, control group was not exposed to any specific training but they participated in their regular schedule. The resting pulse rate was assessed by radial artery pulse methods (in counts) and vital capacity was assessed by Spiro meter test (in liters) were selected as criterion variables. The pre and post tests data

were collected on selected criterion variables prior and immediately after the training program. The pre and post-test selected criterion variable scores were statistically examined by the dependent 't' test and Analysis of Covariance (ANCOVA). The level of significance was fixed at .05 level of confidence, which was considered as appropriate.

4. Analysis of Data

Table 1: Means and dependent 't' test for the pre and post tests on resting pulse rate of experimental and control groups

Criterion variables	Test	Experimental Group Mean	Control Group Mean
Resting pulse rate (in counts)	Pre test	71.46	71.49
	Post test	67.49	70.63
	't' test	6.23*	1.42

*****Significant at .05 level. (Table value required for significance at .05 level for 't'-test with df 9 is 2.26)

The table-1 shows that the pre-test mean value of experimental and control groups on resting pulse rate are 71.46 and 71.49 respectively and the posttest means are 67.49 and 70.63 respectively. The obtained dependent t-ratio values between the pre and posttest means of yogic practices and control groups are 6.23 and 1.42 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.26. From the above table the dependent 't'-test value of resting pulse rate between pre and post tests means of experimental group was greater than the table value 2.26 with df 9 at .05 level of confidence, it was concluded that the experimental group had significant improvement in the resting pulse rate when compared to control group.

Table-2 shows that the adjusted post test means values on resting pulse rate of experimental and control groups 67.47 & 70.62 respectively. The obtained f- ratio of 72.61 for adjusted post test mean is greater than the table value 4.45 with df 1 and 17 required for significance at 0.05 level of confidence. The results of the study indicated that there was a significant mean difference exist between the adjusted post test means of yogic practices and control groups on resting pulse rate.

The bar diagram figure-1 shows that the mean values of pre, post and adjusted post tests on resting pulse rate of yogic practices and control groups.

Table 2: Computation of mean and analysis of covariance on resting pulse rate of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	Df	Mean Square	F
Resting pulse rate (Adjusted Post Mean)	67.47	70.62	BG	913.43	1	913.43	**72.61***
			WG	213.86	17	12.58	

* Significant at 0.05 level. Table value for df 1, 17 was 4.45

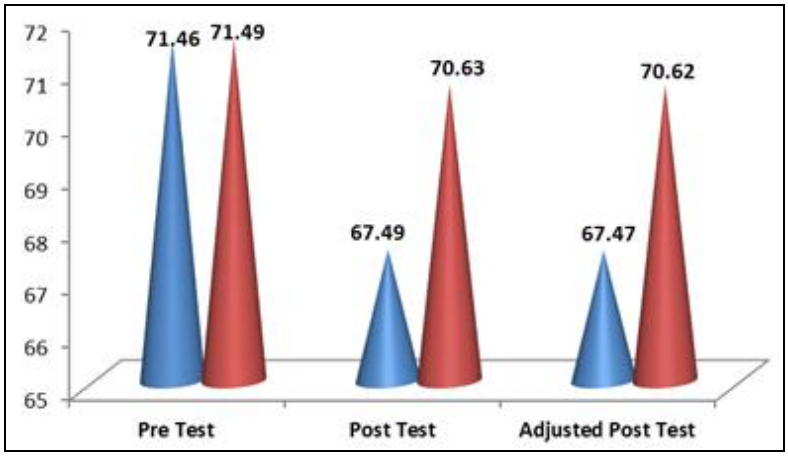

Fig 1: Pre, post and adjusted post tests mean values of experimental and control groups on resting pulse rate (in counts).

Table 3: Means and dependent 't'-test for the pre and post tests on vital capacity of experimental and control groups

Criterion variables	Test	Experimental Group Mean	Control Group Mean
Vital Capacity (in liters)	Pre test	3.54	3.51
	Post test	4.21	3.56
	't'test	11.58*	1.19*

*****Significant at .05 level. (Table value required for significance at .05 level for 't'-test with df 9 is 2.26)

The table-3 shows that the pre-test mean value of experimental and control groups on vital capacity are 3.54 and 3.51 respectively and the posttest means are 4.21 and 3.56 respectively. The obtained dependent t-ratio values between the pre-and posttest means of yogic practices and control groups are 11.58 and 1.19 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.26. From the above table the dependent't'-test value of vital capacity between the pre and post tests means of experimental group was greater than the table value 2.26 with df 9 at .05 level of confidence, it was concluded that the experimental group had significant improvement in the vital capacity when compared to control group.

The descriptive measures and the results of analysis of covariance on the criterion measures were given in the following table-4.

Table 4: Computation of mean and analysis of covariance on vital capacity of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Vital Capacity (Adjusted Post Mean)	4.24	3.56	BG	5.25	1	5.25	**87.43***
			WG	1.02	17	0.06	

* Significant at 0.05 level. Table value for df 1, 17 was 4.45

Table-4 shows that the adjusted post test mean values on vital capacity of experimental and control groups 4.24 & 3.56 respectively. The obtained f- ratio of 87.43 for adjusted post test mean is greater than the table value 4.45 with df 1 and 17 required for significance at 0.05 level of confidence. The results of the study indicated that there was a significant mean difference exist between the adjusted post test means of yogic practices and control groups on vital capacity.

The bar diagram figure-2 shows that the mean values of pre, post and adjusted post tests on vital capacity of yogic practices and control groups.

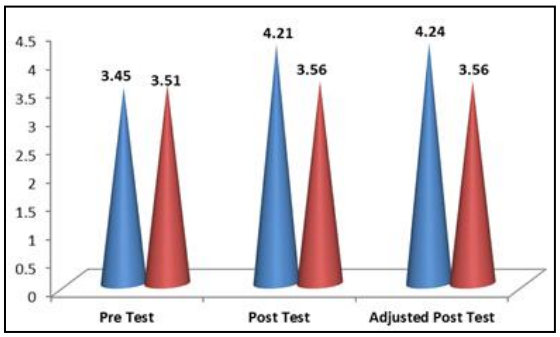

Fig 2: Pre, post and adjusted post tests mean values of experimental and control groups on vital capacity (in liters).

5. Training Plan (Six weeks yogic practices training plan)

Table 5

Week	Yogic practices	Exercises	Day-1	Da-2	Day-3	Day-4	Day-5	Duration
I	Warming Up		5 min	5 min	5 min	5 min	5 min	45 min
	Asana	Surya Namaskar, Halasana, Dhanurasana, Chakrasana, Shirsana, Ardhamatseyendrasana, Mayurasana & Shavasana	20 min	20 min	20 min	20 min	20 min	
	Pranayama	Anuloma Vilom, Nadisudi, kapalbhati & Bhastrika	15 min	15 min	15 min	15 min	15 min	
	Warm down		5 min	5 min	5 min	5 min	5 min	
II	Warming Up		5 min	5 min	5 min	5 min	5 min	50 min
	Asana	Surya Namaskar, Halasana,Dhanurasana, Chakrasana, Shirsana, Ardhamatseyendrasana, Mayurasana & Shavasana	20 min	20 min	20 min	20 min	20 min	
	Pranayama	AnulomaVilom ,Nadisudi, kapalbhati & Bhastrika	15 min	15 min	15 min	15 min	15 min	
	Meditation		5 min	5 min	5 min	5 min	5 min	
	Warm down		5 min	5 min	5 min	5 min	5 min	
III	Warming Up		5 min	5 min	5 min	5 min	5 min	55 min
	Asana	Surya Namaskar, Halasana,Dhanurasana, Chakrasana, Shirsana, Ardhamatseyendrasana, Mayurasana & Shavasana	20 min	20 min	20 min	20 min	20 min	
	Pranayama	AnulomaVilom ,Nadisudi, kapalbhati &Bhastrika	20 min	20 min	20 min	20 min	20 min	
	Meditation		5 min	5 min	5 min	5 min	5 min	
	Warm down		5 min	5 min	5 min	5 min	5 min	
IV	Warming Up		5 min	5 min	5 min	5 min	5 min	55min
	Asana	Surya Namaskar, Halasana, Dhanurasana, Chakrasana, Shirsana, Ardhamatseyendrasana, Mayurasana & Shavasana	20 min	20 min	20 min	20 min	20 min	
	Pranayama	AnulomaVilom, Nadisudi, kapalbhati &Bhastrika	20 min	20 min	20 min	20 min	20 min	
	Meditation		5 min	5 min	5 min	5 min	5 min	
	Warm down		5 min	5 min	5 min	5 min	5 min	
	Warming Up		5 min	5 min	5 min	5 min	5 min	60 min
V	Asana	Surya Namaskar, Halasana,Dhanurasana, Chakrasana, Shirsana, Ardhamatseyendrasana, Mayurasana & Shavasana	20 min	20 min	20 min	20 min	20 min	
	Pranayama	AnulomaVilom ,Nadisudi, kapalbhati &Bhastrika	25 min	25 min	25 min	25 min	25 min	
	Meditation		5 min	5 min	5 min	5 min	5 min	
	Warm down		5 min	5 min	5 min	5 min	5 min	
VI	Warming Up		5 min	5 min	5 min	5 min	5 min	60 min
	Asana	Surya Namaskar, Halasana,Dhanurasana, Chakrasana, Shirsana, Ardhamatseyendrasana, Mayurasana & Shavasana	20 min	20 min	20 min	20 min	20 min	
	Pranayama	AnulomaVilom, Nadisudi, kapalbhati & Bhastrika	25 min	25 min	25 min	25 min	25 min	
	Meditation		5 min	5 min	5 min	5 min	5 min	
	Warm down		5 mint	5 min	5 min	5 min	5 min	

6. Discussion on findings

The present study were found statistically significant improvement on resting pulse rate and vital capacity, which showed that positive influence of yogic practices. The findings of the study were also agreed with the findings of Baljit Singh, S., & Shelvam, V.P. (2013) [4] and Thillaigovindan, C., Subramanian, A. & Sivaraman, P. (2012) [5].

7. Conclusions

1. There was significant improvement on resting pulse rate due to the influence of yogic practices among inter collegiate soccer players.
2. There was significant improvement on vital capacity due to the influence of yogic practices among inter collegiate soccer players.
3. However the control group had not shown any significant improvement on any of the selected variables.

8. References

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