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Effect of yogic exercises on selected physiological variables of soccer players

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Abstract
In this present study take in to account the thirty (N=30) male soccer players, members of an inter-university soccer training camp held BHU, Varanasi during the 2017-18 season. Both groups underwent similar types of training for their inter-university camp under similar environmental conditions. In addition to regular physical training for the inter-university camp, the experimental group was administered specific yogic exercises for 12 weeks, six days a week excluding Sunday. The whole exercise comprised a total of 72 working days throughout the duration of the study. For the study, selected regimen of yogic exercise for 12 weeks use as an independent variable whereas, physiological variables like forced vital capacity, peak expiratory flow, positive breath holding time, negative breath holding time, use as a dependent variable. Prior to the commencement of the twelve weeks in which the yogic training protocol was administered, the selected physiological measurements samples were taken to serve as the baseline data. Immediately after completion of 12 weeks yogic training protocol, post-test data was recorded similarly as per the standardised test and measurement procedures. Laterally, the collected data from the decided sample, statistically examine to evaluate the significant differences by using ANCOVA and paired t-test.

Keywords: Yoga, soccer, physiological

Introduction
As we have seen in the section above in the Modern context, over the course of time, the practice of yoga seems to have gradually drifted away from the heterogeneity it espoused in India during the pre-colonial period. This reveals that during different historical epochs, the term yoga served different connotations. For example, the meaning of the Vedic word *Yuj*, differed from the term *Yoga-yukta* of the *Mahabharata* to the manner in which the term is referred to by the Lord Krishna in the *Bhagavad Gita*. Similarly, differences exist in the manner in which yoga was characterised by Patanjali, the Jaina thinker Haribhadra and the proponents of hatha yoga. All these changes occurred over time and their different meanings can be said to be embedded to a certain extent to their own historical contexts (White, 2012).
"Soccer is the most popular sport in the world. The game's popularity has a good deal to do with its simplicity, all one needs to play it at its most rudimentary level is a ball and open space. As a result, soccer is often the first sport one plays and is a common recreational activity at all ages. But at its highest level, soccer is a game of almost unsurpassed beauty, defined by deft footwork and intricate movement across the pitch. The basic nature of the game may first attract the young to soccer, but it is the sport's unparalleled artistry that has turned billions into lifelong followers". Soccer as played in almost every nation is like a common language that brings people together.
Physiological variables such as forced vital capacity, peak expiratory flow, blood pressure, breath holding time and resting heart rate have a significant relationship with playing ability of university men soccer players.
Forced vital capacity (FVC) is the amount of air forcefully expired by an individual, after a maximum inhalation. Spirometer is the instrument used to measure the forced vital capacity. FVC of untrained individual is ranged from 4-4.5 L whereas in case of trained athletes it is 5-6 L. Aerobic exercises have the capacity to increase the forced vital capacity and it is also one of the most important factors which influence the intensity of the exercise. Forced vital capacity has significant relationship with the anaerobic and aerobic endurance and considered as one of the most important component of endurance performance.

Selection of the subjects

The purpose of present study was to scrutinize the effect of certain set of yogic exercises on selected physiological. Through purposive sampling technique, a total of thirty (*N*=30) male soccer players ranging the age of 20-25 years from an interuniversity coaching camp held at Banaras Hindu University, Varanasi were selected

Selection of the variables

Every training program is assumed to bring about some planned changes in structural elements as well as in the physiological functioning of the human body. This goal of studying the effect of yogic exercises guided the researcher to select the following physiological variables as dependent variables:

a. Physiological Variables
b. Forced Vital capacity
c. Peak expiratory flow
d. Positive Breath holding time
e. Negative Breath holding time

To examine and analyse the effect of yogic exercises on selected physiological and biochemical variables on the basis of pre-set objectives and null hypothesis, researcher used paired t-test and ANCOVA (analysis of covariance) at 5 percent or 0.05 level of significance with the help of statistical package for the social sciences v-23 (SPSS).

Table 1: Comparison of Forced Vital Capacity among Experimental and Control Group Soccer Players

Group	N	Test	Mean	SD	SEM	*t*-Value	*p*-Value
Experimental Group	15	Pre-test	5.55	0.61	0.16	19.13	.000*
		Post-test	6.47	0.55	0.14		
Control Group	15	Pre-test	5.11	0.56	0.14	11.10	.000*
		Post-test	5.49	0.52	0.13		

* Significant at 0.05 level (p<0.05)

Table 1 shows the result about the comparison of forced vital capacity among experimental and control group soccer players. The mean of 15 pre and post-test of experimental group are 5.55 and 6.47 with SD of 0.61 and 0.55 respectively. Further, the t-value is 19.13. Mean and SD of forced vital capacity of the other sample i.e. 15 pre and post-test of the control group are 5.11, 5.49, 0.56 and 0.52 respectively. If we go into a deeper analysis of the coefficient of variance in both pre and post-test on experimental and control group we find that it is 10.99, 8.5, 10.95 and 9.47 percent respectively which means that the experimental group consistently responded towards the yogic training as compared to control group. This finding is also endorsed by the p-value i.e. 0.00 which stated that the null hypothesis is accepted.

The ANCOVA was employed to determine the significance of yogic exercises on the forced vital capacity of male soccer players as compared to the control group and it is presented in Table 2.

Table 2: Analysis of Covariance on Forced Vital Capacity of the Experimental and Control Group

Source of Variance	SS	df	MS	F	Sig.
Between	2.35	1	2.35	105.43	.000*
Within	.60	27	.02		

Significant at 0.05 level (p<0.05)

Table 2 reveals that a significant difference exists between the experimental and control group in relation to forced vital capacity. The 'F' value for the adjusted post-test mean is 105.43 and *p*-value is less than 0.05 level of significance for the degree of freedom 1 and 27. Hence it is concluded that due to the effect of twelve weeks of yogic exercises the forced vital capacity of these selected male soccer players has significantly improved.

Table 3: Comparison of Peak Expiratory Flow among Experimental and Control Group Soccer Players

Group	N	Test	Mean	SD	SEM	*t*-Value	*p*-Value
Experimental Group		Pre-test	547.33	38.07	9.83		

* Significant at 0.05 level (p<0.05)

Table 3 shows the result about the comparison of peak expiratory flow among experimental and control group soccer players. The mean of 15 pre and post-test of experimental group are 547.33 and 619.33 with SD of 38.07 and 44.95 respectively. Further, the t-value is 12.61. Mean and SD of peak expiratory flow on the other sample i.e. 15 pre and post-test of the control group are 540.00, 559.33, 55.80 and 48.47 respectively. If we go in deeper analysis the coefficient of variance in both pre and post-test on experimental and control group is 6.95, 7.25, 10.33 and 8.66 percent respectively which means that experimental group consistently responded towards training as compared to control group. This finding also endorsed by the p-value i.e. 0.00 which stated that the null hypothesis is accepted.

ANCOVA was employed to determine the significance of yogic exercises on the peak expiratory flow of male soccer players as compared to the control group and it is presented in Table 4.

Table 4: Analysis of covariance on peak expiratory flow of the experimental and control group

Source of Variance	SS	df	MS	F	Sig.
Between	21191.43	1	21191.4	69.59	.000*
Within	8221.25	27	304.49		

*Significant at 0.05 level (p<0.05)

From the description presented in Table 4, it has been found that a significant difference exists between the experimental and control group in relation to peak expiratory flow. The 'F' value for the adjusted post-test mean is 69.59 and p-value is less than 0.05 level of significance for the degree of freedom 1 and 27. Hence it is concluded that due to the effect of twelve weeks of yogic exercises the peak expiratory flow of male soccer players has significantly increased. The pre-test, post-test and adjusted post-test mean scores of the control group and experimental group for peak expiratory flow are graphically presented.

Table 5: Comparison of positive breath holding time among experimental and control group soccer players

Group	N	Test	Mean	SD	SEM	*t*-Value	*p*-Value
Experimental Group	15	Pre-test	74.58	12.04	3.10	19.13	.000*
		Post-test	97.12	12.70	3.28		
Control Group	15	Pre-test	73.19	9.72	2.51	11.10	.000*
		Post-test	77.66	8.89	2.29		

* Significant at 0.05 level (p<0.05)

Table 5 shows the result about the comparison of positive breath holding time among experimental and control group soccer players. The mean of 15 pre and post-test of experimental group are 74.58 and 97.12 with SD of 12.04 and 12.70 respectively. Further, the t-value is 15.31. Mean and SD of positive breath holding time on the other sample i.e. 15 pre and post-test of the control group are 73.19, 77.66, 9.72 and 8.89 respectively. If we go in deeper analysis the coefficient of variance in both pre and post-test on experimental and control group is 16.14, 13.07, 13.28 and 11.44 percent respectively which means that experimental group consistently responded towards training as compared to control group. This finding also endorsed by the p-value i.e. .000 which stated that the null hypothesis is accepted.

ANCOVA was employed to determine the significance of yogic exercises on the positive breath holding time of male soccer players as compared to the control group and it is presented in Table 6.

Table 6: Analysis of covariance on positive breath holding time of the experimental and control group

Source of Variance	SS	df	MS	F	Sig.
Between	2463.60	1	2463.60	144.04	.000*
Within	461.78	27	17.10		

* Significant at 0.05 level (p<0.05)

Table 6 reveals that a significant difference exists between the experimental and control group in relation to positive breath holding time. The 'F' value for the adjusted post-test mean is 144.04 and p-value is less than 0.05 level of significance for the degree of freedom 1 and 27. Hence it is concluded that due to the effect of twelve weeks of yogic exercises the positive breath holding time of male soccer players has significantly increased.

Table 7: Comparison of negative breath holding time among experimental and control group soccer players

Group	N	Test	Mean	SD	SEM	t-Value	p-Value
Experimental Group	15	Pre-test	50.44	8.08	2.08	22.79	.000*
		Post-test	72.61	8.70	2.24		
Control Group	15	Pre-test	50.00	7.87	2.03	14.85	.000*
		Post-test	54.42	7.99	2.06		

Table 7 shows the result about the comparison of negative breath holding time among experimental and control group soccer players. The mean of 15 pre and post-test of experimental group are 50.44 and 72.61 with SD of 8.08 and 8.70 respectively. Further, the t-value is 22.79. Mean and SD of negative breath holding time on the other sample i.e. 15 pre and post-test of the control group are 50.00, 54.42, 7.87 and 7.99 respectively. If we go in deeper analysis the coefficient of variance in both pre and post-test on experimental and control group is 16.01, 11.98, 15.74 and 14.68 percent respectively which means that experimental group consistently responded towards training as compared to control group. This finding also endorsed by the p-value i.e. 0.00 which stated that the null hypothesis is accepted.

ANCOVA was employed to determine the significance of yogic exercises on the negative breath holding time of male soccer players as compared to the control group and it is presented in Table 8.

Table 8: Analysis of covariance on negative breath holding time of the experimental and control group.

Source of Variance	SS	df	MS	F	Sig.
Between	2361.62	1	2361.62	293.87	.000*
Within	216.97	27	8.03		

Significant at 0.05 level (p<0.05)

Table 8 reveals that a significant difference exists between the experimental and control group in relation to negative breath holding time. The 'F' value for the adjusted post-test mean is 293.87 and p-value is less than 0.05 level of significance for the degree of freedom 1 and 27. Hence it is concluded that due to the effect of twelve weeks of yogic exercises the negative breath holding time of male soccer players has significantly improved.

Conclusion

The ANCOVA was employed to determine the significance of yogic exercises on the forced vital capacity of male soccer players as compared to the control group employed to determine the significance of yogic exercises on the negative breath holding time of male soccer players as compared to the control group. . Hence it is concluded that due to the effect of twelve weeks of yogic exercises the negative breath holding time of male soccer players has significantly improved. And also the effect of twelve weeks of yogic exercises the positive breath holding time of male soccer players has significantly increased

References

1. John S, Sun C, Biggerstaff KD. Cardiorespiratory responses during body weight supported treadmill exercise. International Journal of Exercise Science: Conference Proceedings. 2019;2(11):123
   Retrieved from https://digitalcommons.wku.edu/ ijesab /vol2/ iss11/123
2. Mondal S, Kundu B, Saha S. Blood sugar and lipid adaptations to yoga therapy. Journal of Yoga and Physical Therapy. 2014;4(4):1-4. Doi: 10.4172/2157-7595.1000175
3. Mondal S, Kundu B, Saha S. Yoga as a therapeutic intervention for the management of type 2 diabetes mellitus. International Journal of Yoga. 2018;11(2):129-138. Doi: 10.4103/ijoy.IJOY_74_16

4. Morehouse LE. Yoga and Health. New York, NY: McGraw-Hill. Muktibodhananda, S. (2004). Swara yoga: The tantric science of brain breathing. Munger; c1982.
5. India: Yoga Publications Trust White, D. G. Yoga in practice. Oxfordshire, England: Princeton University Press; c2012.
6. Winter EM, Jones AM, Davison RC, Bromley PD, Mercer TH. *Sport* and exercise physiology testing guidelines: The British association of sports and exercise science guide. New York, NY: Routledge. 2007;2.
7. Woods JH. The Yoga Sutras of Patanjali. Mineola, NY: Dover Publications; c2003.
8. Wu C, Miller J, Sexton A, Fondrick J, Koh Y. Responses of serum lipids and lipoproteins following power-based resistance training in athletes. International Journal of Exercise Science: Conference Proceedings. 2013;2(5):63. Retrieved from https://digitalcommons.wku.edu/ijesab/vol2/iss5/63.