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Investigation of the effect of yogic exercises on selected physiological parameters among college-level male volleyball players

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Abstract

The purpose of the study was to find out the investigation of the effects of yogic practices on the physical and physiological parameters of college-level male volleyball players. A total of 30 players were randomly selected and divided into two groups: Group I, which underwent yogic practices (YEG), and Group II, serving as the control group (CG). YEG participants received yogic training three days a week for eight weeks, while the CG continued their routine activities without additional training. A pilot study was conducted to determine the subjects' initial capacity and set appropriate training loads. The physiological parameters of breath-holding time and resting pulse rate were measured before and after the training period. Statistical analysis using the 't' test was performed to assess any significant improvements at a 0.05 level of confidence. The results showed a significant enhancement in breath-holding time and resting pulse rate among the YEG participants, despite potential influences of factors such as diet, climate, lifestyle, and prior training. These findings align with previous research in the field of sports sciences, indicating that yogic practices had a positive effect of yogic exercise on the physiological parameters of college-level male volleyball players.

Keywords: Yogic exercises, breath holding time, resting heart rate

Introduction

Yogic exercises hold significant importance for volleyball players due to their potential to enhance both the physical and mental aspects of performance. Volleyball is a demanding sport that requires a unique blend of strength, agility, flexibility, and focus. Yogic practices, which encompass various postures (Asanas), controlled breathing (Pranayama), and meditation techniques, can help athletes improve their overall fitness, reduce the risk of injuries, and attain a state of mental clarity and composure. By incorporating yogic exercises into their training regimen, volleyball players can develop better body awareness, balance, and flexibility, allowing them to execute quick movements and respond effectively to the dynamic nature of the game. Moreover, the mental aspects of yogic exercises, including stress reduction and enhanced concentration, can contribute to better decision-making on the court and improved resilience in high-pressure situations. This thesis explores the specific physiological and psychological benefits that yogic exercises offer to college-level volleyball players, shedding light on how this ancient practice can positively impact their performance and overall well-being.

Methods: The primary objective of this research was to investigate the influence of Yogic Exercises on specific physiological parameters within the demographic of college-level male volleyball players. The study involved the selection of 30 male inter-collegiate volleyball players in Coimbatore, who were randomly allocated into two groups the Yogic Exercise Group (YEG) consisting of 15 participants, and the Control Group (CG) with an equal number of 15 participants. An initial pilot study was conducted to assess the subjects' baseline capacity and determine appropriate training loads. The YEG group received tailored training sessions three days a week (On alternate days) over an eight-week period, while the CG group maintained their regular routine without any additional training.

Design

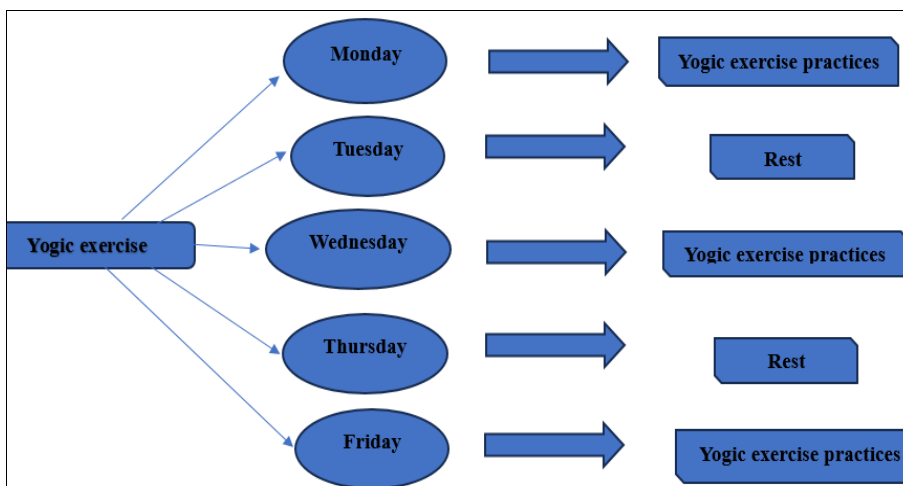
The study focused on evaluating two key physiological parameters, namely Breath Holding Time and Resting Heart Rate, both measured in seconds. These measurements were taken at the outset of the study and then again after a eight-week period of yogic practice to assess any changes or improvements.

Training Programme

The training program comprised 45-minute sessions per day, scheduled three times a week for a total duration of eight

weeks. Each session encompassed a 10-minute warm-up, 25 minutes dedicated to yogic exercises, and concluded with a 10-minute cool-down period. As part of the program's progression, the intensity of the workload was incrementally raised by 5% every three weeks, gradually advancing from 65% to 80% of the initial workload. The prescribed volume of yogic exercises was determined based on specific sets and repetitions.

Yogic Exercises Practices Training groups



Statistical Analysis

The data gathered both before and after the 8-week training period, pertaining to the mentioned variables affected by yogic practices, underwent statistical analysis using the 't' test.

This analysis aimed to ascertain any significant improvements between the pre-test and post-test measurements. Throughout the analysis, the threshold for determining statistical significance was set at a confidence level of 0.05.

Table 1: Analysis of t-ratio for Breath Holding Time Experimental Group and control group

Variables	Group	Mean		S. D		t-ratio
		Pre	Post	Pre	Post	
Breath Holding Time	Experimental	47.97	53.87	13.62	12.17	4.95
	Control	57.77	58.31	9.26	8.84	.529

Significant level 0.05 level (degree of freedom 2.14,1 and 14)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected physiological parameters, namely Breath holding time of experimental group. The obtained 't' ratio on Breath holding time were 4.95 and .529 respectively.

The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were greater than the table value it was found statistically significant.

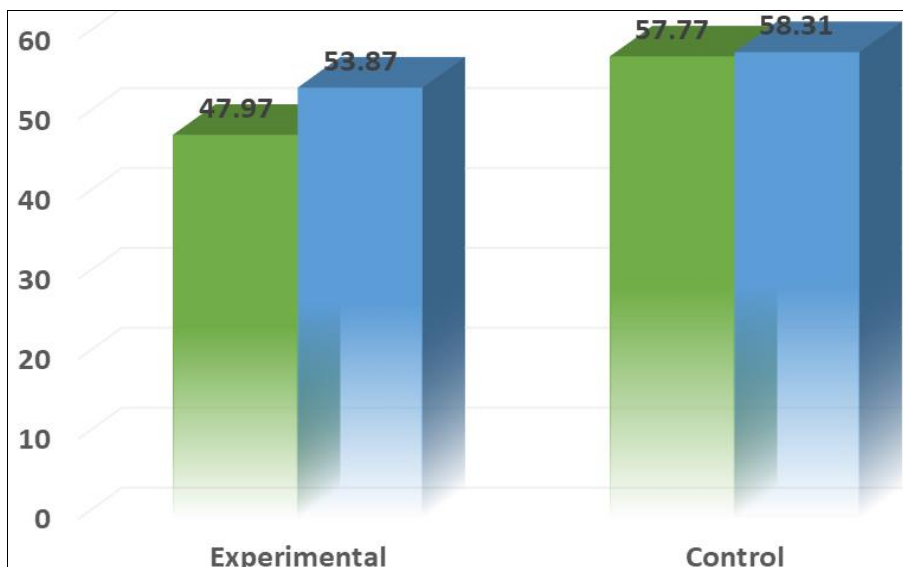


Fig 1: Breath holding time

Bar diagram showing the mean value on physiological Parameters of Breath holding time of college level male volleyball Players on experimental and control group

Table 2: Analysis of t-ratio for Resting Heart Rate Experimental Group and control group

Variables	Group	Mean		S. D		t-ratio
		Pre	Post	Pre	Post	
Resting Heart Rate	Experimental	78.50	69.10	4.77	1.43	7.80
	Control	76.93	77.60	6.35	5.20	

Significant level 0.05 level (degree of freedom 2.14,1 and 14)

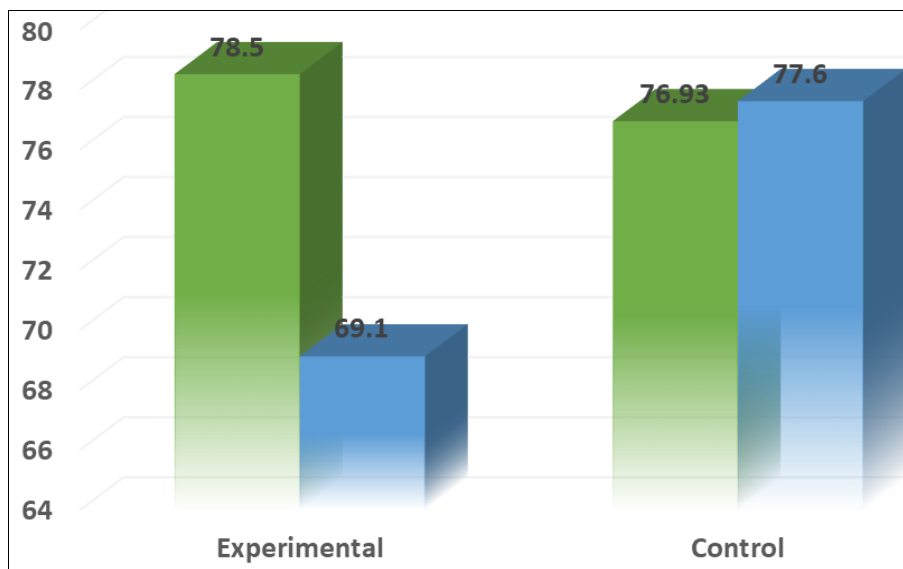


Fig 2: Resting heart rate

Bar diagram showing the mean value on physiological Parameters of Resting heart rate for college level male volleyball Players on experimental and control group

Discussion and finding

The findings of this study reveal the significant positive impact of yogic exercises on the physiological parameters of college-level male volleyball players. The results showed notable improvements in breath-holding time and resting heart rate in the Yogic Exercise Group (YEG) after an eight-week training period. These findings align with previous research in the field of sports sciences, highlighting the potential benefits of yogic practices for volleyball players. The improvement in breath-holding time suggests enhanced respiratory function among YEG participants. This could be attributed to the focus on controlled breathing techniques in yogic exercises, which can contribute to improved lung capacity and oxygen exchange. The ability to hold one's breath for an extended duration can be valuable in a sport like volleyball, where quick bursts of energy and controlled breathing are crucial.

The significant reduction in resting heart rate among YEG participants is also noteworthy. A lower resting heart rate indicates an enhanced cardiovascular efficiency, which can lead to improved endurance and overall fitness. This change is particularly relevant to athletes who need to sustain physical effort over extended periods. Despite potential confounding factors such as diet, climate, lifestyle, and prior training experiences, the results suggest that yogic practices have a discernible positive impact on the physiological well-being of college-level male volleyball players.

Table II reveals the computation of mean, standard deviation and ‘t’ ratio on selected physiological parameters, namely Breath holding time of experimental group. The obtained ‘t’ ratio on Breath holding time were 7.80 and 1.046 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were greater than the table value it was found statistically significant.

Conclusion

This study provides valuable insights into the positive effects of yogic exercises on the physiological parameters of college-level male volleyball players. The findings suggest that the incorporation of yogic practices into the training regimen can lead to enhanced respiratory function and improved cardiovascular efficiency. These benefits can contribute to better physical performance and overall well-being. Further research may explore the long-term effects of yogic exercises and their potential application in various sports disciplines.

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