

## The impact of pilates training and yogic practices on physiological variables among male college athletes

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### Abstract

The study aimed to explore the influence of Pilates training and yogic practices on physiological variables among college male athletes. The hypothesis posited that eight weeks of yogic practice would significantly impact selected physiological variables in male athletes. For this investigation, 30 randomly selected male athletes from Coimbatore district, Tamil Nadu, India, aged between 18 to 24 years, were chosen as subjects. The research employed a pretest–posttest random group design, incorporating an experimental group (Group ‘A’) and a control group (Group ‘B’), each comprising fifteen participants. Group ‘A’ underwent yogic practice, while Group ‘B’ received no training. Anaerobic power and Vo<sub>2</sub> max were assessed using the Margaria-kalamen test and Queen college step test, respectively. Data were collected before and after eight weeks of training. Analysis of Covariance (ANCOVA) was employed to determine the impact of pilates training and yogic practices on physiological variables among male athletes, with the significance level set at 0.05. The study's findings strongly indicate that eight weeks of yogic practice had a significant effect on the selected variables in male athletes, thus supporting the initially hypothesized impact.

**Keywords:** Pilates training and yoga practices, anaerobic power and Vo<sub>2</sub> max

### Introduction

Joseph Pilates introduced Pilates training in the early 20th century as a method to improve physical strength, flexibility, and posture. Since its inception, Pilates has gained popularity not only as a fitness regimen but also as a rehabilitative tool. The exercises focus on core strength, balance, and mind-body connection, making it particularly appealing to a wide range of individuals, from athletes to rehabilitation patients.

Pilates consists of a series of controlled movements that engage both the body and mind. By emphasizing proper breathing techniques and alignment, Pilates aims to improve overall fitness without placing undue stress on joints or muscles. As a result, it has been integrated into various fields, including sports training, physical therapy, and general fitness programs.

In recent years, research has increasingly explored the physiological and psychological benefits of Pilates training. This paper aims to delve into the current understanding of how Pilates impacts physiological variables, particularly among male college athletes. By examining recent studies and empirical evidence, this paper will contribute to our understanding of the potential benefits of Pilates in enhancing athletic performance and overall well-being.

Yoga, a science of right living, becomes effective when seamlessly integrated into our daily lives. The term 'yoga' signifies 'unity' or 'oneness,' derived from the Sanskrit word 'yuj,' meaning 'to join.' Unfortunately, numerous misconceptions shroud the science of Yoga, with some perceiving it as black or white magic, sorcery, or a form of physical or mental debauchery capable of miraculous feats.

Considered one of India's wonderful gifts to mankind, Yoga is the union of body and mind. It is a simple and accessible practice for people from all walks of life. A key attribute is its ability to enhance physical health through the practice of exercises known as asanas, maintaining body cleanliness and fitness. Yoga postures involve coordinating breath with movement, holding positions to stretch and strengthen various body parts. Yogic practice complements other physical exercises like running, cycling, and swimming, systematically engaging major muscle groups. Yogic postures target back, neck, shoulders, deep abdominal, hip, ankles, feet, wrists, and hands, promoting strength, flexibility, and nourishment to internal organs.

While not typically aerobic, the poses facilitate oxygen flow through conscious deep breathing and sustained muscle stretching and contraction. Yoga helps maintain muscular balance, fostering efficient function of both mind and body. The science of yoga involves acquiring knowledge through observation and experimentation, focusing on body and mind control to achieve mental equilibrium. Health and strength are attained when a state of balance is reached. Like other arts, Yoga is not only a science but also a philosophy, emphasizing analysis in its approach.

### Methodology

The objective of this study was to investigate the impact of Pilates training and yogic practices on physiological variables among male athletes. It was hypothesized that eight weeks of yogic practice would significantly influence selected physiological variables in male athletes. For the present study, 30 males from Coimbatore district, Tamil

Nadu, India, were randomly selected as subjects, with ages ranging from 18 to 24 years. A pretest–posttest random group design, incorporating an experimental group (Group ‘A’) and a control group (Group ‘B’), was employed. Subjects were randomly assigned to two equal groups of fifteen each. Group ‘A’ underwent yogic practice, while Group ‘B’ received no training. Anaerobic power and Vo2 max were assessed using the

Margaria-kalamen test and Queen college step test, respectively. Data were collected before and after eight weeks of training. Analysis of Covariance (ANCOVA) was applied to determine the effect of Pilates training and yogic practice on selected physiological variables of male athletes, with the level of significance set at 0.05.

**Results**

**Table 1:** Descriptive statistics for pre-test and post-test scores on selected variables of Pilates training and yogic practices and the control group.

S. No	Group	Variables	Pre-Test Mean	Post-Test Mean	Adjusted Mean
1	Pilates training and yogic practices Group	Anaerobic power	142.02	145.92	145.92
2		Vo2 max	875.35	895.50	895.79
1	Control Group	Anaerobic power	142.48	143.90	143.92
2		Vo2 max	876.15	876.40	875.95

\* Significant at 0.05 level

**Table 2:** Calculation of Analysis of Variance (ANOVA) for Initial and Final Means of Selected Physiological Variables

Variables		Sources	SS	df	MS	F-ratio
Anaerobic power	Pre Test	Between sets	1.10	1	1.10	0.24
		Within sets	106.66	28	3.88	
	Post Test	Between sets	101.03	1	109.03	90.97*
		Within sets	196.93	28	9.60	
Vo2 max	Pre Test	Between sets	0.73	1	0.83	0.28
		Within sets	71.46	28	1.91	
	Post Test	Between sets	94.53	1	4.53	20.70*
		Within sets	85.33	28	3.40	

\*significant at 0.05 level

In the initial data analysis, the F-test was applied to examine the initial and final means between the Pilates training and yogic practices Group (YPG) and the Control Group (CG) on physiological variables. The critical F-value for significance at a 0.05 level with degrees of freedom (df) 1 and 28 is 4.19. The obtained F-values for the initial means of anaerobic power (0.24) and vo2 max (0.28) were found to be insignificant, as they did not meet the required table value of 4.19 for df 1 and 28.

Consequently, it was concluded that the mean difference between the YPG and CG on the variables examined in this study before the treatment is statistically insignificant.

For the final means, the observed F-values for anaerobic power (90.97) and vo2 max (20.70) were compared to the table value at a 0.05 significance level. It was determined that the observed F-values for final means of anaerobic power, vo2 max exceeded the required table value of 4.19 for df 1 and 28. Therefore, it was concluded that the mean

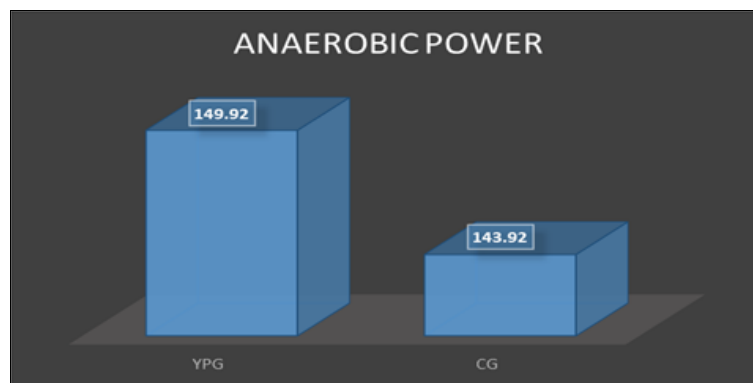
difference between the YPG and CG on the final means of anaerobic power and vo2 max is statistically significant.

**Table 3:** Conducting an Analysis of Covariance (ANCOVA) on anaerobic power

Sources of Variance	Sum of Squares	Df	Mean Square	F-ratio
Between sets	101.03	1	109.03	90.97*
Within sets	196.93	28	9.60	

\*significant at 0.05 level

Table III indicates that the obtained 'f' value, significant at the 0.05 level with degrees of freedom 1 and 27, surpassed the required table value of 4.21. With an observed 'f' value of 90.97 greater than the table value (4.21), it was concluded that the adjusted mean difference between the Pilates training and yogic practices Group (YPG) and Control Group (CG) on anaerobic power was statistically significant.



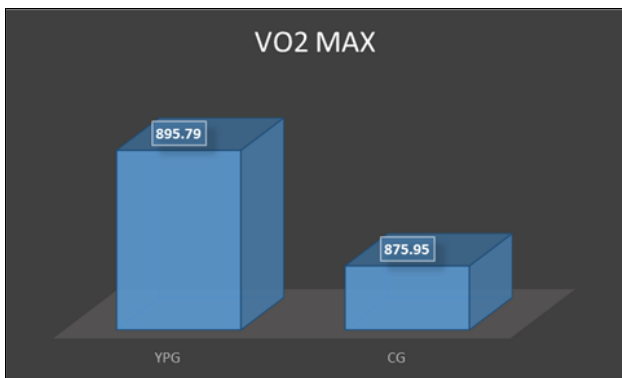
**Fig 1:** illustrates the adjusted post-test mean values of the Pilates training and yogic practices Group (YPG) and Control Group (CG) on anaerobic power

**Table 4:** Conducting an Analysis of Covariance (ANCOVA) on vo2 max

Sources of Variance	Sum of Squares	Df	Mean Square	F-ratio
Between sets	94.53	1	4.53	20.70*
Within sets	85.33	28	3.40	

\*significant at 0.05 level

Table IV indicates that the obtained 'f' value was significant at the 0.05 level, with degrees of freedom 1 and 27. The required table value was 4.21. With the observed 'f' value of 20.70 being greater than the table value (4.21), it was inferred that the adjusted mean difference between the Pilates training and yogic practices Group (YPG) and Control Group (CG) on vo2 max was statistically significant.



**Fig 2:** depicts the adjusted post-test mean values of the Pilates training and yogic practices Group (YPG) and Control Group (CG) on vo2 max

**Finding of results**

In the case of physiological variables, the results between the pre-test and post-test (8 weeks) have been found to be significantly higher in the experimental group compared to the control group. This is likely due to regular Pilates training and yogic practices, which may lead to a sudden increase in physiological variables among male athletes. The findings of the present study strongly indicate that eight weeks of yogic practice have a significant effect on selected physiological variables. Anbalagan, P., Meenatchi, G., Mahasuran, A., Atheeskumar, P., & Vineesh, T. J. (2021) [7]. Effect of hatha yoga practices on selected physical and physiological parameters among the working women.

**Conclusion**

Within the limitations of the present study, the following conclusions were drawn:

1. The Pilates training and yogic practices Group exhibited a significant difference in all the selected physiological variables for male athletes.
2. The experimental group demonstrated significant improvement in all the selected physiological variables compared to the control group.

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