ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 5| May 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

IMPACT OF POWER YOGA PRACTICES ON SELECTED CARDIORESPIRATORY PARAMETERS AMONG OVERWEIGHT CHILDREN

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ABSTRACT

The rising prevalence of obesity has altered societal perceptions about health and lifestyle. Beyond looks, this issue impacts physical and emotional well-being and increases the risk of chronic diseases. To understand and treat overweight, a comprehensive approach combining lifestyle changes, nutritional education, and mental health support is required. Power Yoga combines dynamic, flowing sequences with mindfulness, creating a balanced approach to strength, flexibility, and mental clarity. This invigorating practice enhances muscle tone, boosts stamina, and increases metabolic efficiency while fostering greater body awareness. The physically demanding poses promote fat burning, improve cardiovascular health, and build resilience. Beyond the physical, Power Yoga uplifts the mood, reduces stress, and sharpens focus through breath control and mindfulness. It cultivates discipline and inner strength, empowering individuals to face life's challenges with grace and composure. Whether through challenging postures, seamless transitions, or breath-synchronized movement, Power Yoga offers a transformative journey toward holistic fitness and inner vitality. ***Aim:*** *The present study was framed to study the impact of power yoga practices on selected cardiorespiratory parameters among overweight children.* ***Samples:*** *Forty overweight boys were selected from various schools in Coimbator, Tamil Nadu. The age group was fixed in the range of 12 to 17.* ***Experimental Design:*** *Among the 40 subjects were divided into one experimental group and one control group with twenty subjects (N=20) in each group. Experimental group I (PYPG=20) underwent power yoga practices for a period of twelve weeks, for four days in a week, the workout lasted for 60 minutes approximately and Control group II (CG=20) do not undergo any sort of training except their daily routine. The data analysis was conducted using the dependent 't' test, and a confidence level of 0.05 was used to determine statistical significance.* ***Results:*** *The results indicate that there was a significant difference between the power yoga practices group compared to the control group, suggesting that the power yoga practices had an impact on the overweight children. Specifically, the children who underwent the power yoga practices showed improvements in their selected cardiorespiratory parameters.* ***Conclusion:*** *Children who are overweight can see a considerable improvement in their cardiorespiratory parameters by practicing power yoga. The results demonstrate that training regimens customized to the demands of power yoga practices can improve participant's cardiorespiratory performance more effectively than control groups. This study offers insightful information about the significance of power yoga practices for enhancing specific cardiorespiratory parameters in overweight children, including breath holding time, peak expiratory flow rate, anaerobic capacity and vo2 max.*

KEY WORDS*: Power Yoga, Cardiorespiratory Parameters and Overweight.*

INTRODUCTION

Significant health problems have resulted from the increasing prevalence of overweight, which has altered societal perceptions of eating, lifestyle, and general health. Beyond outward appearances, this issue has an impact on mental and physical health and increases the risk of chronic conditions like diabetes and heart disease. The primary causes of the rise in overweight include environmental factors, high-calorie diets, and sedentary lifestyles. A comprehensive understanding that includes reassessing societal standards, dietary instruction, and mental health care is necessary due to the intricate relationships between environmental, socioeconomic, and genetic factors. Obesity is a global scourge these days, not simply a problem in wealthy societies. According to the **WHO**, obesity's multifaceted effects are a serious public health issue. Modern eating patterns that prioritize processed, high-calorie foods and a decline in physical activity due to urbanization and technological advancements are major contributing causes. Because those with lower means often lack access to wholesome food and secure recreational spaces, socioeconomic and environmental issues are equally crucial. To combat obesity, a comprehensive approach that considers both individual behaviors and broader societal factors is required.

Power yoga, a dynamic and vigorous form of yoga, has gained popularity as a holistic approach to fitness and weight management. Rooted in traditional yoga practices, power yoga combines strength, flexibility, and mindfulness, offering a comprehensive workout that can contribute to weight loss when practiced consistently. Power Yoga is definitely an intense workout that will make you sweat. It is a traditional Ashtanga practice follows the same series of poses and makes you hold each for five breaths before moving through a next movement. Power Yoga classes move even with faster rhythm. There are very few moments of being in a pose and getting the feeling that it's taking forever. Soon enough, we can be out and moving on to the next Asana. It's great for strength training: Other forms of yoga may be ideal for flexibility and meditation, but in Power

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Yoga, we can lift and hold your entire body's weight constantly. These classes incorporate serious movements of yoga, and they are definitely going to get the entire body into gear.
(K Tamizhmaran, 2020)

METHODOLOGY

Participation: The purpose of the study was to determine the effect on power yoga practices on selected cardiorespiratory parameters among overweight children. Forty overweight boys were selected from various schools in Coimbator, Tamil Nadu. Among the 40 subjects were divided into one experimental group and one control group with twenty subjects (N=20) in each group. Experimental group I (PYPG=20) underwent high intensity exercise for a period of twelve weeks, for four days in a week, the workout lasted for 60 minutes approximately and Control group II (CG=20) do not undergo any sort of training except their daily routine. The data analysis was conducted using the dependent 't' test, and a confidence level of 0.05 was used to determine statistical significance. ***Criterion Measures***: It is evaluated the cardiorespiratory variables where chosen as the criterion measures to this study for testing.

TABLE - 1
CRITERION MEASURES

S.No	PARAMETERS	TESTS	UNIT OF MEASUREMENT
RESPIRATORY PARAMETERS			
1.	Breath Holding Time	Breath Holding Fitness Test	In Seconds
2.	Peak Expiratory Flow Rate	Peak Flow Meter	In Litres/ Minute
3.	Anaerobic Capacity	60 Yard Shuttle Run Test	In Seconds
4.	VO2 Max	Cooper VO2 Max Test	In ml/kg/min

Statistical Methods: In order to determine whether there was a significant improvement between the pre and post-test, the data obtained on the aforementioned parameters before and after a twelve-week training session resulting from power yoga practices for overweight children was statistically evaluated using the "t" test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P<0.05).

TABLE – II
The 't'- ratio for high intensity exercise group for overweight children and control group on respiratory parameters

Variables	Group	Test	Mean	SD	SEM	t-ratio
Breath Holding Time	PYPG	Pre Test	52.00	2.96	0.66	6.64*
		Post Test	56.40			
	CG	Pre Test	53.80	3.65	0.82	0.55
		Post Test	53.35			
Peak Expiratory Flow Rate	PYPG	Pre Test	435.75	2.81	0.63	2.94*
		Post Test	437.60			
	CG	Pre Test	435.05	5.32	1.19	1.73
		Post Test	433.00			
Anaerobic Capacity	PYPG	Pre Test	15.36	0.46	0.10	5.63*
		Post Test	14.78			
	CG	Pre Test	15.34	0.54	0.12	0.95
		Post Test	15.45			
VO2 Max	PYPG	Pre Test	8.83	1.72	0.38	4.66*
		Post Test	10.62			
	CG	Pre Test	8.38	1.72	0.38	1.17
		Post Test	8.82			

*Note: PYPG- Power Yoga Practices Group, CG- Control Group. Significance at 0.05 level of confidence for df of 19 is 2.09.

Mean, standard deviation and t-value were calculated for each outcomes measure can be found in Table-II result shows that the pre-test mean values of power yoga practices group and control group (52.00, 435.75, 15.36 and 8.83) and (53.80, 435.05, 15.34 and 8.38) respectively and the post-test mean values are(56.40, 437.60, 14.78 and 10.62) and (53.35, 433.00, 15.45 and 8.82) respectively. The obtained dependent t-test value on breath holding time (t=6.64*), peak expiratory flow rate (t=2.94*), anaerobic capacity (t=5.63*) and vo2 max (t=4.66*) of power yoga practices group respectively. The table value required for significant difference with degrees of freedom 19 at 0.05 level of confidence. The obtained 't' test value of power yoga practices group was greater than the table value 2.09. The results clearly indicated that the breath holding time, peak expiratory flow rate, anaerobic capacity and vo2 max of the power yoga practices group improved due to impact of power yoga practices on selected cardiorespiratory parameters among overweight children.

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FIGURE-I Bar diagram showing the mean values of pre and post-test on breath holding time of PYPG and CG

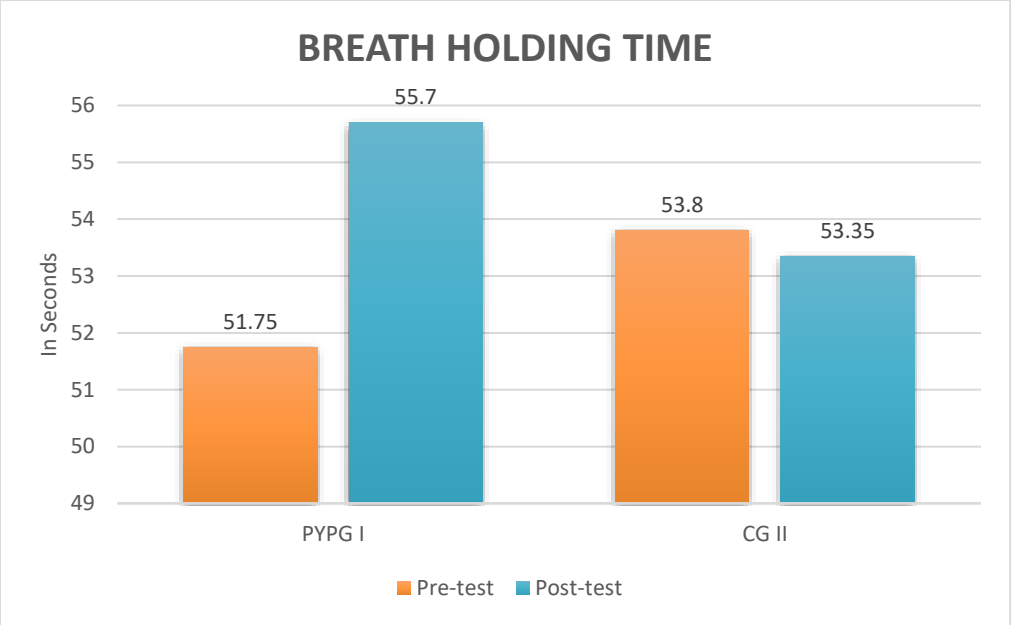
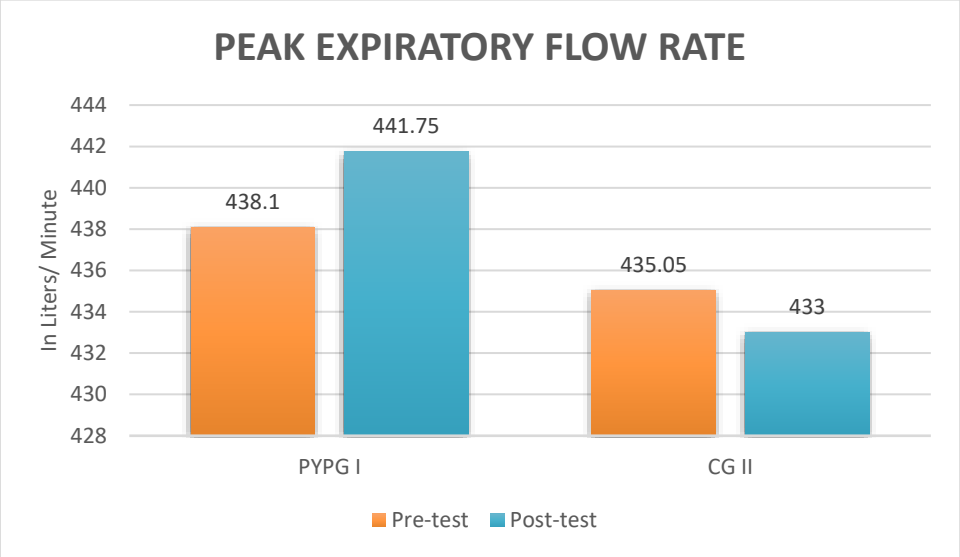


FIGURE-2 Bar diagram showing the mean values of pre and post-test on peak expiratory flow rate of PYPG and CG



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FIGURE-3 Bar diagram showing the mean values of pre and post-test on anaerobic capacity of PYPG and CG

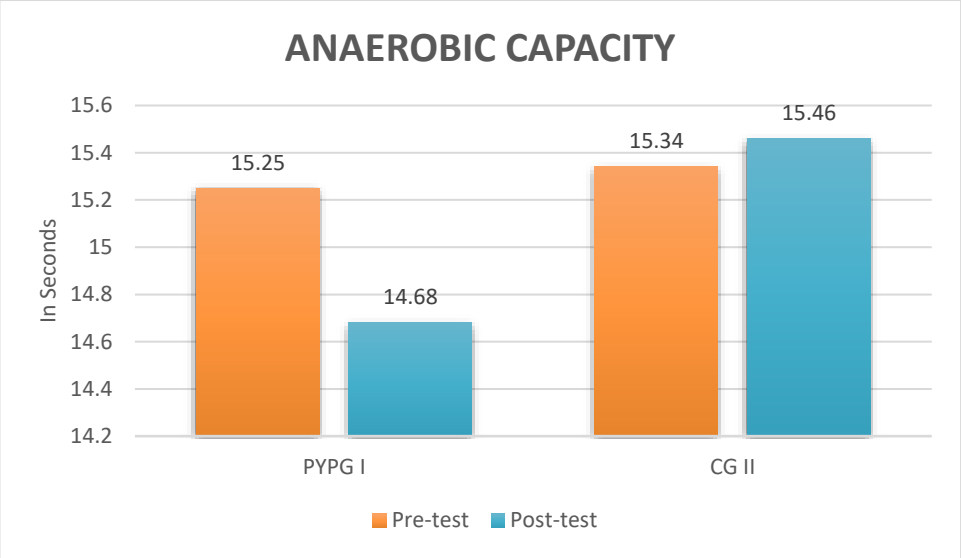
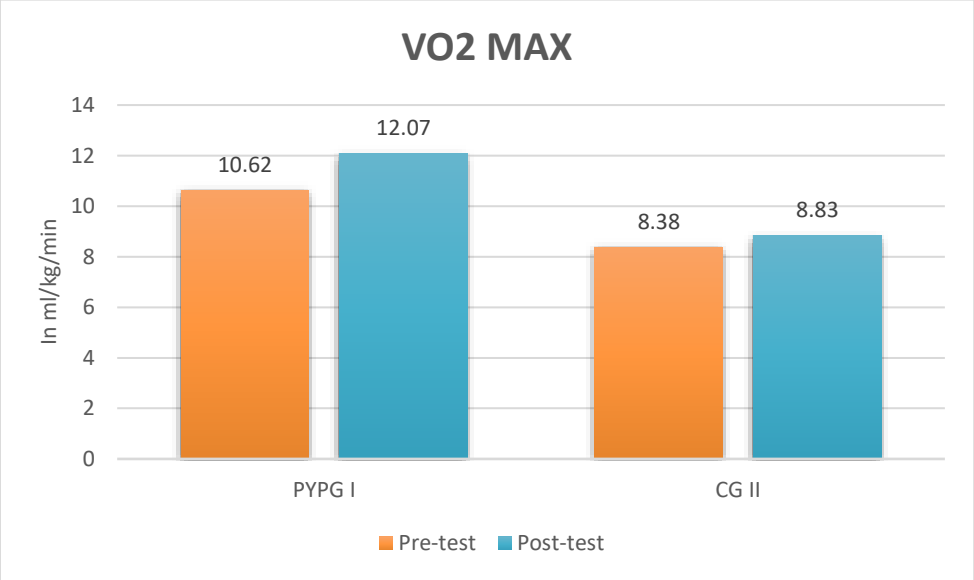


FIGURE-4 Bar diagram showing the mean values of pre and post-test on vo2 max of PYPG and CG



DISCUSSION ON FINDINGS

Taking into account the results, the power yoga practices group demonstrated significantly improved respiratory parameters, such as namely breath holding time, peak expiratory flow rate, anaerobic capacity and vo2 max. When compared to the control group, it was discovered that power yoga practices was the reason for the development. This study found that power yoga techniques enhanced respiratory metrics and could be a helpful tactic for raising performance in these areas. Therefore, the findings are consistent with earlier research that has highlighted the impact of power yoga practices on selected cardiorespiratory parameters among overweight children. Results show that there was a significant difference among experimental and control groups on breath holding time. Based on this findings indicate a significant improvement in breath-holding time among overweight children after Power Yoga intervention. Breath-holding time is an important indicator of respiratory muscle strength and lung capacity **(Reddy et al., 2019)**. The dynamic asanas and controlled breathing techniques in Power Yoga likely strengthened respiratory muscles, enhanced diaphragmatic efficiency, and improved the overall ability to hold breath. A study by **Joshi et al. (2021)** supports these findings, demonstrating that yoga-based interventions significantly enhance breath control in children due to the focus on pranayama and deep breathing practices.

Many studies have proved that power yoga practices have a direct impact on the peak expiratory flow rate due to the improvement in respiratory muscle strength, enhanced lung capacity, better regulation of breathing patterns, and increased flexibility of the thoracic region. The combination of dynamic postures and controlled breathing exercises in power yoga helps strengthen the diaphragm and intercostal muscles, leading to more efficient airflow and improved pulmonary function. This study shows that, Power Yoga was found to significantly improve PEFR among participants, which is a key measure of airway function and lung capacity. Regular practice of yoga postures that involve chest expansion and breath

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synchronization may improve pulmonary ventilation and airway resistance **(Muralikrishnan et al., 2018)**. Additionally, the enhanced respiratory mechanics developed through yoga are supported by previous research showing that practices involving breathe control increase PEFR among children **(Pandey & Tiwari, 2017)**.

In this research, the experimental group's anaerobic capacity has significantly enhanced. This study demonstrates that, The improvement in anaerobic capacity suggests enhanced short-term high-intensity physical performance among the children who practiced Power Yoga. This parameter reflects the ability to generate energy in the absence of oxygen and is often associated with activities that require bursts of strength and speed **(Chatterjee et al., 2020)**. Power Yoga, characterized by dynamic transitions between poses and holding high-intensity postures, may have enhanced muscular endurance and lactate threshold in the children, contributing to increased anaerobic capacity. These results align with findings from **Singh and Patel (2019)**, who reported improvements in anaerobic performance following yoga-based interventions.

The results of this study indicate that, there is a significant improvement on vo2 max due to power yoga practices. Thus, this article's findings reveal a significant increase in VO2 max among overweight children, indicating improved cardiovascular efficiency and aerobic capacity. VO2 max is considered a gold-standard measure for cardiorespiratory fitness **(Mitchell et al., 2018)**. Power Yoga's high-energy sequences and continuous flow likely challenged the cardiovascular system, promoting adaptations that increased oxygen uptake efficiency. This result is consistent with the work of **Sharma and Sharma (2021)**, who found significant improvements in VO2 max following dynamic yoga interventions, attributed to enhanced oxygen delivery and utilization during physical activity.

CONCLUSION

Children who are overweight benefit greatly from power yoga in terms of their respiratory characteristics. The experimental group's VO_2 Max, anaerobic capacity, peak expiratory flow rate (PEFR), and breath holding time (BHT) all showed notable gains, according to the study. These results imply that power yoga is very beneficial for improving respiratory efficiency, aerobic endurance, and lung function. These alterations are probably due to better oxygen usage, increased lung flexibility, stronger diaphragms, and better breath control. In order to improve respiratory health and general fitness in overweight pediatric populations, the findings highlight the significance of including power yoga sessions in intervention efforts. This study emphasizes the need for additional research to determine long-term benefits and the best yoga practices for this population, while also contributing insightful information to the body of existing literature.

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