Effect of Yogic Practices on Selected Physiological Variables among School Handball Players

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KEYWORDS

Yogic Practices, VO2 Max, Resting Heart Rate, Physiological, Handball Players.

ABSTRACT

The purpose of the study was to find out the effect of yogic practices on selected physiological variables among school handball players. To achieve the purpose of this study, thirty school handball players were selected as subjects from Shivamoga district, Karnataka and their age ranged from 15 to 17 years. The true randomized group design was used in which thirty school handball players were divided into two groups of fifteen each named as yogic practices and control group. The subjects were tested prior to and after the twelve weeks of experimentation. VO2 max was measured by beep test and resting heart rate was measured by bio-monitor. The obtained data from the experimental and control groups initial and final readings were statistically analyzed with analysis of covariance (ANCOVA). The level of confidence which was fixed at 0.05 level of confidence. The experimental group had achieved significant differences on vo2 max and resting heart rate when compared to control group.

1. Introduction

In order to achieve the highest level of consciousness, yoga is an ancient Indian way of life that involves dietary adjustments, mental attitude adjustments, and the application of particular techniques like breathing exercises, yoga postures, and meditation. Yoga is a way of life with the goals of mental and physical well-being; it is not a religion. Hatha yoga, raja yoga, jnana yoga, integral yoga, karma yoga, bhakti yoga, mantra yoga, kundalini yoga, sahaja yoga, laya yoga, and many more are the most popular in India. Asana, pranayama, and kriya practice are all part of hatha yoga. Patanjali, an ancient sage, developed the eight stages of yoga, also known as ashtanga yoga, around 900 BC. Thus, pranayama, meditation, and hatha yoga are all incorporated into integral yoga. [2]

Yoga can treat some illnesses with specific movements called asanas and breathing techniques. [1,3] Yoga is a psycho-somatic-spiritual practice that aims to finally unite our individual consciousness with the universal consciousness as well as to achieve harmony and union between our mind, body, and soul.[4,5,7] Numerous physiological changes occur when a person practices yoga with a yogic attitude of patience, perseverance [8], and overcoming internal obstacles, such as overcoming feelings of indolence, anger, delusion, and the desire to be different or better than others.[13]

The study, which involved six healthy Asian Indian men and women 18–22 years old, who had received training in Surya Namaskar for more than two years, revealed that consistent Surya Namaskar practice may help maintain or enhance cardiorespiratory fitness and aid in weight management.[9] 50 healthy male participants, aged 18 to 25, who underwent 12 weeks of Mukh Bhastrika, a form of pranayama breathing training,

demonstrated an increase in parasympathetic activity, as evidenced by a decrease in basal heart rate, an increase in valsalva ratio, and a decrease in the deep breathing difference in heart rate; and a decrease in sympathetic activity, as evidenced by a decrease in the drop in systolic blood pressure in response to changes in posture. [17]

Since a decade, there has been a surge in the research on yoga on physiological variables which intended the researcher to take up this study.

2. Methodology

Finding out how yoga practices affected specific physiological variables in school handball players was the aim of the study. Thirty school handball players, ages 15 to 17, were chosen as subjects from the Shivamoga district of Karnataka in order to fulfil the study's objectives. Thirty school handball players were split into two groups of fifteen each, referred to as the control group and the yogic practices group, using a true randomised group design. Both before and after the twelve weeks of the experiment, the subjects underwent testing. The bio-monitor was used to measure resting heart rate [11], and the beep test [10] was used to measure VO2 max.

3. Results and Discussion

The results are presented in the following tables,

Table 1. Computation of mean and analysis of covariance on vo2 max of experimental and control groups

VO2 Max

	Experimental Group	**Control Group**	**Source of variance**	**Sum of squares**	**df**	**Mean square**	***F***
Pre test mean	50.23	49.76	BG	1.20	1	1.20	*0.15*
			WG	218.66	28	7.81	
Post test mean	54.01	49.99	BG	67.50	1	67.50	*6.30**
			WG	299.86	28	10.71	
Adjusted post mean	54.00	49.98	BG	51.87	1	51.87	*7.58**
			WG	*184.92*	*27*	*6.84*	

* Significant at 0.05 level

In order to examine differences in VO2 max between the study and non-study groups, a test between subject effects *f*-test was conducted. Given a $F(1,27)=0.002$, $p = .004$, a f-test unianova was calculated. The results of this test indicated that there was an insignificant difference in first mean and the obtained 'f' ratio was 0.15. And indicated significant differences in last and modified last mean and the obtained 'f' ratios were 6.30

and 7.58. These results suggested there exists significance between study and non-study groups.

Figure 1. Line diagram shows the mean differences of VO2 max

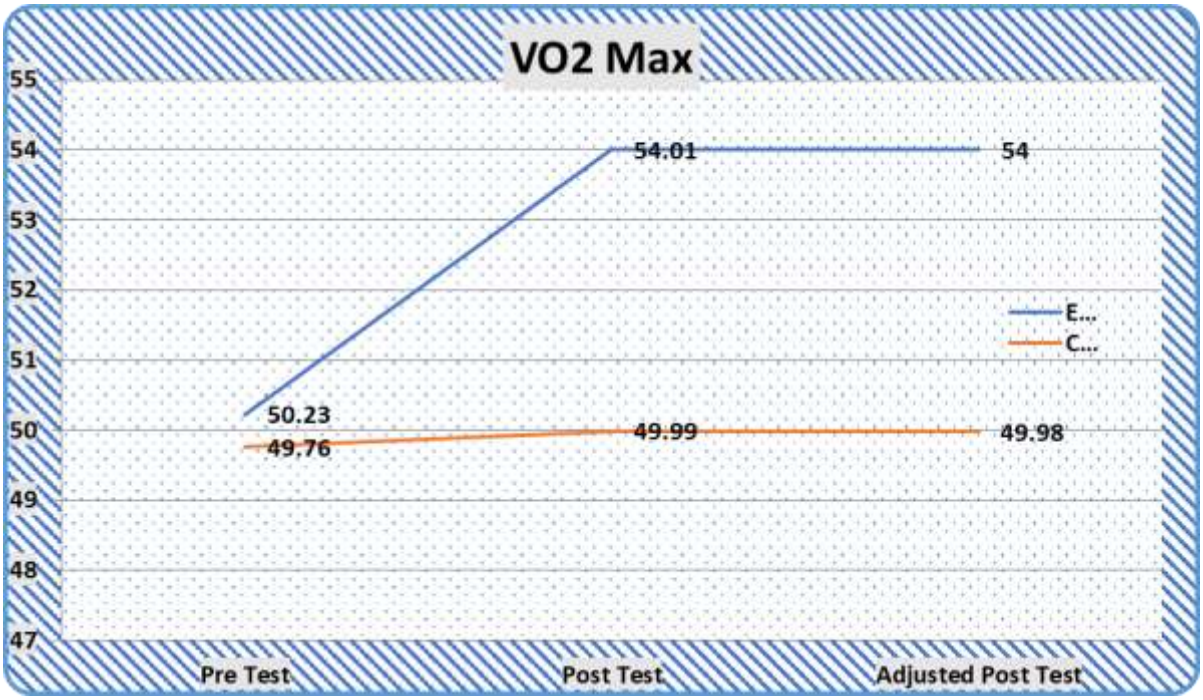


Table 2. Computation of mean and analysis of covariance on resting heart rate of experimental and control groups

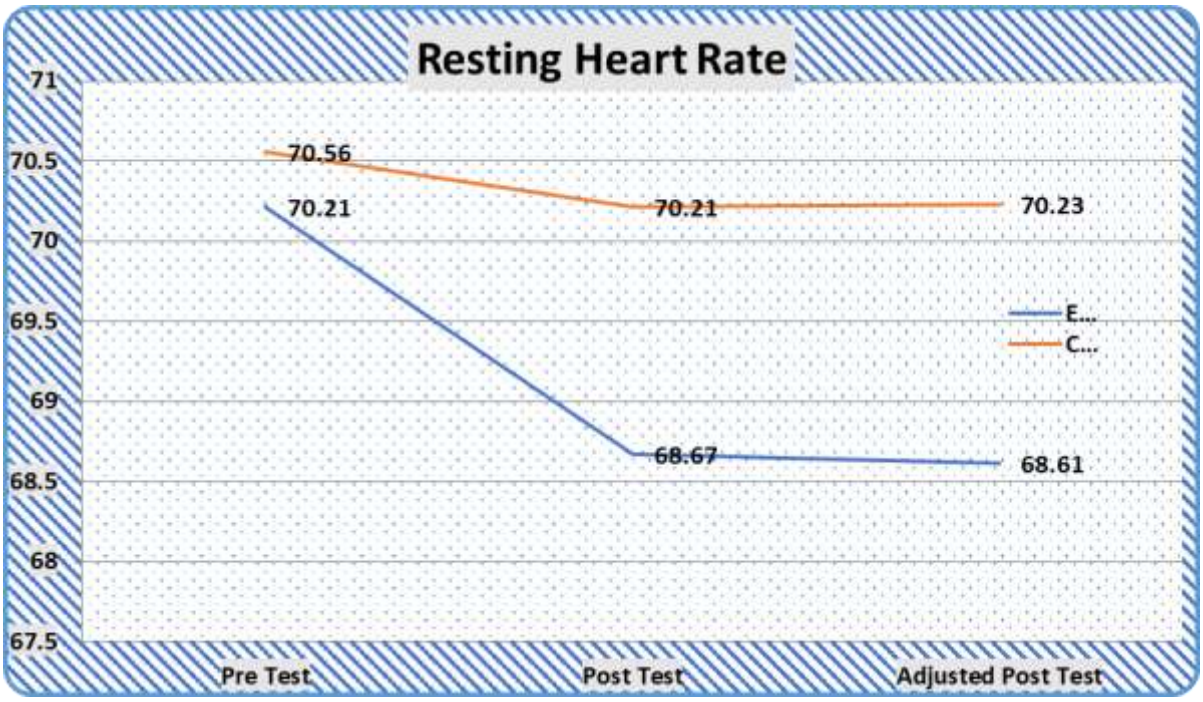
Resting Heart rate

	Experimental Group	**Control Group**	**Source of variance**	**Sum of squares**	**df**	**Mean square**	***F***
Pre test mean	70.21	70.56	BG	10.80	1	10.80	*0.23*
			WG	1284.66	28	45.88	
Post test mean	68.67	70.21	BG	1613.33	1	1613.33	*27.14**
			WG	1664.13	28	59.43	
Adjusted post mean	68.61	70.23	BG	1407.52	1	1407.52	*41.07**
			WG	*925.47*	*27*	*34.27*	

* Significant at 0.05 level

In order to examine differences in resting heart rate between the study and non-study groups, a test between subject effects *f*-test was conducted. Given a $F(1,27)=0.001$, $p = .003$, a f-test unianova was calculated. The results of this test indicated that there was an insignificant difference in first mean and the obtained 'f' ratio was 0.23. And indicated significant differences in last and modified last mean and the obtained 'f' ratios were 27.14 and 41.07. These results suggested there exists significance between study and non-study groups.

Figure 2. Line diagram shows the mean differences of resting heart rate



4. Discussion on Findings

One of the well-liked training programs that is practiced by people of all ages is yoga. To keep our bodies in a state of homeostasis, physiological fitness is crucial [12,14]. It has been discovered that 6–10 months of yoga practice improves physiological parameters, including learning, arithmetic, psychomotor skills, mental health, and heart rate, blood pressure [15,18].

5. Conclusions

1. The experimental group had achieved significant improvement on vo2 max when compared to control group.
2. The experimental group had achieved significant reduction on resting heart rate when compared to control group.

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