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## Effect of yoga practices on selected physiological and biochemical variables among male farm science graduates of Tamil Nadu agricultural university

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### Abstract

The purpose of this study was to find out the effect of yoga practices on physiological and biochemical variables among male farm science graduates. The sources of data were collected from Tamil Nadu Agricultural University in Coimbatore, Tamil Nadu. The researcher had selected forty-five (n=45) male subjects for this study. All the subjects were divided into three groups of fifteen each, namely yoga practices three days per week group (Group I) and yoga practices five days per week (Group II) and (Group III) acted as control. Experimental groups (Group I & Group II) underwent the respective yoga practices for duration of six weeks a written consent was obtained from the subjects. However, they were free to withdraw their consent in case they felt any discomfort during the period of their participation. The above study was statistically analysis by data analysis of covariance (ANCOVA).

**Keywords:** Physiological, biochemical, farm science graduates

### Introduction

Yoga is an ancient discipline designed to bring balance and health to physical, mental, emotional, spiritual dimension of the Individual. Yoga in its own way a system of knowledge, is a science of being, a psychophysical system. Yoga means to attain physical and mental purification. Yoga stretching is recommended from head to foot which not only affect all the muscles of a particular system (or) organ but almost all the muscles involved in the therapeutic effects of yoga, efforts have been underway to understand the mechanisms of these health benefits, including research on inflammation and the autonomic nervous system. Catherine Cook-Cottone (2017) [2] indicates that one most powerful effect is to regulate the effects of stress, increased flexibility, strength, and enhanced awareness of the body and emotions. The practice of yoga enabled the students to turn inward and focus on the present moment and also able to increase their sense of personal value; strengthen a sense of personal trust. The teachers and students identify their personal growth, confidence, copying skill and self compassion.

Yoga is a tool and positive pathway to wellbeing that can deepen and benefit anyone of any religion. It does not conflict with personal beliefs; it is simply a vehicle to transform oneself by promoting conscious connection with oneself of the world and the highest truth. There are many traditional paths of yoga, including tantra, mantra, kundalini, bhakti, jnana, karma, raja yoga, and others, all of which have their own techniques to awaken these connections. According to the classic text of the Yoga Sutras of Patanjali, "yoga" is the complete "inhibition of the modifications of the mind" or quieting of the constant chatter in one's mind so that our True Selves can manifest, rest in our own true nature and be free of suffering. Disease, as described in the sutras, is said to be an impediment to spiritual practice, growth and freedom from suffering. Traditional yogic practices include breath control and techniques (pranayama), meditation (including mindfulness), the adoption of specific bodily postures (asanas) and self-reflection. Yoga is a definite means of physical, mental, emotional and spiritual development, as it improves strengthens and develops both the physical and mental personality. Everybody wants a fit and efficient body and mind. Remember that the mind and body act and react on each other. Mental ailments cause physical ailments and vice versa within the past decade, yoga has infiltrated not only Western culture, but also Western medicine.

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The more we learn about this ancient practice, the more we realize that its benefits go far beyond increased flexibility and muscle tone.

A common misunderstanding is that yoga predominantly focuses on increasing flexibility; however, although Hatha Yoga, or the physical practice of yoga, does emphasize appropriate postural alignment, musculoskeletal strength and endurance as well as balance, the study and practice of yoga incorporates mindfulness-based practices such as mindful breathing techniques, focused concentration, meditation and self-reflection. Asanas are special patterns of postures that stabilize the mind and the body through static stretching. Regular practice of sun salutation regulates Pingala Nadi (right nostril), whether it is underactive or overactive, thus leading to a balanced energy system at both the mental and physical levels. Yogasanas is very important for youth, children. With these practices they can reduce their physiological level and increase the skill learning. The brain and spinal cord constitute central nervous system and nervous impulse could be controlled by practicing yogasanas properly and regularly. It also gives massage to spinal cord. This is the scientific method of exercise for controlling tension, anxiety and improving self-concept, skill learning based on the rules governing the working of the muscle in the body which are under control of the will. Find out effect of varied yogic practices on selected physiological variables among obese men. The result of the study indicated the significant improvement in self-confidence after the experimental period.

## Methodology

### Selection of Subjects

To achieve the purpose, forty-five (N=45) male farm science graduates from Tamil Nadu Agricultural university in Coimbatore. To conduct the experiment, the farm science graduates ages of 18-20 were selected as subjects. The

subjects were divided into three group of fifteen each. The duration of the experimental period was six weeks, the selected 45 graduates were divided into to three groups viz., (Group I) - three days per week, (Group II)-five days per week and (Group III) acted as control.

### Selection of Variables

Variables are the conditions that the experimenter manipulates controls or observations are Breath holding time, resting pulse rate, High density lipoproteins cholesterol (HDL) and low density lipoproteins cholesterol (LDL).

### Training Programme

During the training period, the experimental groups underwent their respective training programmes. Group-I underwent yoga practices for three days per week, Group-II underwent yoga practices for five days per week for six weeks. The duration of training session in all the days was between one hour to one and half hour approximately which included warming up and limbering down. All the subjects involved in this study were carefully monitored throughout the training programme to be away from injuries.

### Training Details of yogic practice

Duration of the training	:	6 Weeks
Number of days per week	:	5/3 Days
Duration of the session	:	90 Minutes

### Time schedule for a session

Asanas	:	40 Minutes
Pranayamas	:	20 Minutes
Distributed Relaxation	:	15 Minutes
Meditation	:	15 Minutes

## Results

**Table I:** Computation of Analysis of Covariance of Physiological and Biochemical Variables

Variables	Test	Exp. Gp 1	Exp. Gp 2	Control GP	SOV	SS	df	MS	F
Breath Holding Time	Pre-test Mean	29.40	29.87	29.60	B	18.02	2	9.01	1.12
					W	6538.88	42	75.16	
	Post-test Mean	33.20	35.60	29.47	B	581.09	2	290.54	3.85*
					W	6562.70	42	75.43	
	Adjusted Post-test mean	33.35	35.43	29.48	B	273.42	2	136.71	59.30*
					W	94.52	41	2.31	
Resting pulse Rate	Pre-test Mean	79.53	79.07	80.07	B	393.04	2	207.78	1.31
					W	118.90	42	6.31	
	Post-test Mean	76.80	72.73	80.40	B	384.24	2	227.78	3.91*
					W	115.53	42	5.50	
	Adjusted Post-test mean	76.81	73.03	80.09	B	369.92	2	184.96	71.12*
					W	106.63	41	2.60	
High density lipoproteins cholesterol HDL)	Pre-test Mean	41.60	41.60	40.73	B	628.56	2	119.78	1.75
					W	268.35	42	8.95	
	Post-test Mean	46.40	50.07	40.40	B	608.67	2	304.3	6.73*
					W	258.33	42	7.33	
	Adjusted Post-test mean	46.17	49.83	40.87	B	604.61	2	302.31	45.29*
					W	273.69	41	6.68	
LOW density lipoproteins cholesterol LDL)	Pre-test Mean	134.00	132.47	125.07	B	6480.51	2	2412.26	1.87
					W	2884.10	42	124.97	
	Post-test Mean	116.47	101.33	126.27	B	5887.55	2	2645.28	8.89*
					W	1270.70	42	248.61	
	Adjusted Post-test mean	114.19	100.06	129.81	B	5663.80	2	2831.90	102.82*
					W	1129.24	41	27.54	

\* Significant at.05 level of confidence (The table value required for Significance at.05 level with df 2and 41 is 3.23)

As shown in table II, obtained F value on the scores of the pretest means 1.12, 1.31, 1.75&1.87 was lesser than the required F value of 3.103, which proved that the random assignment of the subject were successful and their scores in Breath holding time, Resting pulse rate, High density lipoproteins cholesterol (HDL) and Low density lipoproteins cholesterol (LDL) before the training were equal and there was no significant differences. The analysis of Post-test means proved that the obtained F value 3.85, 3.91, 6.73 &8.89 was greater than the required F value of 3.103 to be

significant at 0.05 levels. Taking in to consideration of the Pre-test and Post-test and Post-test means the adjusted Post-test means were done and the obtained F value of 59.30, 71.12, 45.29 &102.82 was greater than the required F value of 3.103. Hence it is accepted that the yoga practices for three days group and Swami yoga practices for five days group significantly increased the Breath holding time, Resting pulse rate, High density lipoproteins cholesterol (HDL) and low density lipoproteins cholesterol (LDL)

**Table II:** Scheffe's Confidence Interval Test Scores

Variables	MEANS			Mean Difference	Required CI
	EXP.GP 1	EXP.GP 2	Control GP		
Breath Holding Time	33.35	35.43	-	2.08*	1.39
	33.35	-	29.48	3.87*	1.39
	-	35.43	29.48	5.95*	1.39
Resting pulse Rate	76.81	73.02	-	3.79*	1.48
	76.81	-	80.09	3.28*	1.48
	-	73.02	80.09	7.07*	1.48
High density lipoproteins cholesterol (HDL)	46.17	49.83	-	3.66*	2.37
	46.17	-	40.87	5.30*	2.37
	-	49.83	40.87	8.96*	2.37
LOW density lipoproteins cholesterol (LDL)	114.9	100.06	-	14.13*	4.81
	114.9	-	129.81	15.62*	4.81
	-	100.06	129.81	29.75*	4.81

\* Significant at 0.5 level of confidence

## Discussion

The results of the study indicate that both the experimental groups namely the yoga practices three days per week and the yoga practices five days per week had shown significant change in the selected dependent variables namely Breath holding time, Resting pulse rate, High density lipoproteins cholesterol (HDL) and Low density lipoproteins cholesterol (LDL). It is also found that the significant change achieved by the yoga practices five days per week group is greater when compared to that of yoga practices three days per week than the Control group.

Examined at the end of the 40 days of performing the asanas, on average the study participants had a decrease in fasting glucose levels, a significant decrease in waist-hip ratio and beneficial changes in insulin levels. conducted the effects of walking, treadmill, static cycling, Amarantha Kokkuasana (Sitting crane), Nindra Kokkuasana (Standing crane) and Vil asana (Bow pose, rocking, especially side to side). Compared with the above two asanas, the most effective were found to be the latter. It was concluded that the direct stimulation of the pancreas by the postures rejuvenated its capacity to produce insulin.

## Conclusions

The Experimental groups namely, yoga practices three days per week and yoga practices five days per week groups had significantly decreased in physiological and biochemical variables such as resting pulse rate, respiratory rate, High density lipoproteins cholesterol (HDL) and Low Density Lipoproteins Cholesterol (LDL). It is also found that the significant change achieved by the yoga practices five days per week group is greater when compared to that of yoga practices three days per week and Control group.

Thus further studies should identify which patients may benefit from the interventions and which aspects of the yoga interventions (i.e., physical activity and/ or meditation and subsequent life style modification) or which specific yoga styles were more effective than others. Larger-scale and more

rigorous research is highly encouraged because yoga may have potential to be implemented as a safe beneficial supportive/ adjunct treatment that is relatively cost-effective, may be practiced at least in part as self behavioral treatment, provides a life-long behavioral skill, enhances self-efficacy and self-confidence and is often associated with additional positive side effects.

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