

## Effect of yogic practices on vital capacity and total cholesterol

■ T. PRABAKARAN AND S. CHIDAMBARA RAJA

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### ■ ABSTRACT

The purpose of the present study was to find out the effect of yogic practices on vital capacity and total cholesterol. For this purpose, thirty middle aged men around Kullanchavady town, Cuddalore district, Tamilnadu in the age group of 35 – 40 years were selected. They were divided into two equal groups, each group consisted of fifteen subjects, in which group – I underwent Yoga practices and group – II acted as control that did not participate in any special activities apart from their regular day-to-day activities. The training period for this study was five days in a week for thirteen weeks. Prior to and after the training period the subjects were tested on vital capacity and total cholesterol. It was concluded from the results of the study that the Yoga practice has increasing the vital capacity significantly. The result of the study also showed that there was no significant reduction in total cholesterol after the yogic practices. It was also found that there was a significant difference between the yogic practice group and control group only on vital capacity and not in the cholesterol level.

■ **Key Words** : Yogic practice, Vital capacity, Cholesterol

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See end of the article for authors' affiliations

Correspondence to :

T. PRABAKARAN

Department of Physical Education and Sports Sciences, Annamalai University, Annamalainagar, CHIDAMBARAM (T. N.) INDIA

The word Yoga is derived from the Sanskrit root 'yuj' meaning to bind, join, attach and yoke, to direct and concentrate one's attention on, to use and apply. It also means union or communion.

According to Swami Satyanand Saraswathi (1999) "Yoga is not an ancient myth buried in oblivion. It is the most valuable inheritance of the present. It is the essential need of today and the culture of tomorrow".

The Sanskrit term *Yoga* is most frequently interpreted as the "union" of the individual self (*jīva-ātma*) with the supreme self (*parama-ātman*). The ancient definition is at home in Vedānta, the dominant branch of Hindu philosophy, which also greatly influenced the majority of Yoga schools. Vedānta proper originated with the ancient esoteric scripture known as the *Unpanishads*, which first taught the "inner ritual" of meditation upon, and absorption into, the unitary ground of all existence. However, nondual hymns of the *Vedas*.

Yoga is an ancient system of physical and psychic practice that originated during the Indus valley civilization in

South Asia. The fundamental purpose of Yoga is to foster harmony in the body, mind and environment (George Feuerstein, 2002).

One of the most useful measurements of lung volume is vital capacity: the maximal volume of air that can be forcefully exhaled after taking the deepest breath. Values vary from 3 litres to 6 litres. The actual value is not a very good indicator of fitness because it tends to vary for a number of reasons, including the size and sex of each individual. However, among individuals of the same size and sex, the vital capacity tends to be greater in those who exercise regularly. Usually, relatively fit and healthy individuals can exhale at least 83 per cent of their vital capacity in the first second of exhalation. At rest, only about half a litre of air is drawn into the lungs with each breath; this is known as the tidal volume. It increases with exercise until it reaches the vital capacity. The total amount of air inhaled each minute (ventilation rate) depends on both the depth and frequency of breathing.

Cholesterol is necessary to the normal permeability and

function of cell membranes, the membranes that surround cells. Cholesterol is carried in the bloodstream as lipoproteins. After the age of 20, cholesterol testing is recommended every 5 years. A diet high in saturated fats tends to increase the blood cholesterol levels while diets high in unsaturated fats tend to do the opposite, to lower blood cholesterol levels. Although some cholesterol is obtained from the diet, most cholesterol is made in the liver and other tissues.

## ■ METHODOLOGY

To achieve the purpose of the study 30 middle aged men living around Kullanchavadi town, Cuddalore district, Tamilnadu were selected as subjects and their age ranged between 35 and 40 years. They were asked to undergo medical check up and were found to be normal, healthy and fit enough to undergo training. Group - I underwent Yoga practices (n = 15) and group - II acted as control (n = 15), which did not undergo any training apart from their day-to-day activities. The yogic practice period for the present study was five days per week for thirteen weeks. For every training programme, there was a change in various structure and systems in human body. So, the researchers consulted with the Yoga experts, then selected the following variables as criterion variables: 1. Vital capacity and 2. Total cholesterol. The vital capacity was measured by using the wetspirometer and total cholesterol was measured by using the Boehringer Mannheim Kit method. For the purpose of collection of data on total cholesterol, the subjects were asked to report at early morning, one day prior to the commencement of training and one day after the training, in fasting condition. 5 ml of blood was collected from each subject by venous puncture method and the blood thus collected was stored in small bottles for pre and post-test.

## The following asanas were given :

Yogasanas: Suryanamaskar, Padmasana, Oorthuvamuga Bhujangasan, Vajrasan, Halashan, Parivattasana, Shalabhasan, Sasangasan, Sharvangasan, Yogamuthra, Dhanurasan, Sedhubandhasan, Mayoorsan, Komukasan, bhavanamukthasan, Veerabathrasan, Omkar

## ■ OBSERVATIONS AND DISCUSSION

The results obtained from the present investigation are presented below:

### Analysis of data :

The data collected prior to and after the yogic practice period on vital capacity and total cholesterol on Yoga practice group and control group were analysed and presented in the following Table 1.

The analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the experimental group and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

After applying the analysis of covariance, the result of this study (Table 1 and Fig. 1) showed that there was a significant increase in vital capacity for the yogic practice group and there was no significant decrease in the blood cholesterol. Further, comparing the adjusted post-test means of the criterion variables, such as the vital capacity (F- ratio 19.27 > p 0.05), the yogic practice group was significantly increased and in the level of total cholesterol and there was no significant decrease (F – ratio 0.171 < p 0.05) after the Yogic practices. The results of the study also showed that there was a significant difference in vital capacity between

Table I : Analysis of covariance and 'F' ratio for vital capacity and total cholesterol for yoga practice, group and control group				
Variable name	Group name	Yoga practice group	Control group	'F' ratio
Vital capacity (in ml)	Pre-test mean ± S.D	2557.33 ± 53.15	2574.67 ± 40.33	1.004
	Post-test mean ± S.D.	2574.67 ± 57.68	2568.67 ± 57.68	0.096
	Adj. Post-test mean ± S.D.	2583.95	2559.38	19.27*
Total cholesterol (in mg/dl)	Pre-test mean ± S.D	190.73 ± 14.95	191.80 ± 14.68	0.039
	Post-test mean ± S.D.	193.33 ± 9.78	192.93 ± 12.11	0.01
	Adj. Post-test mean ± S.D.	193.65	192.62	0.17

\* indicate significance of value at p=0.5

(The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21, respectively)



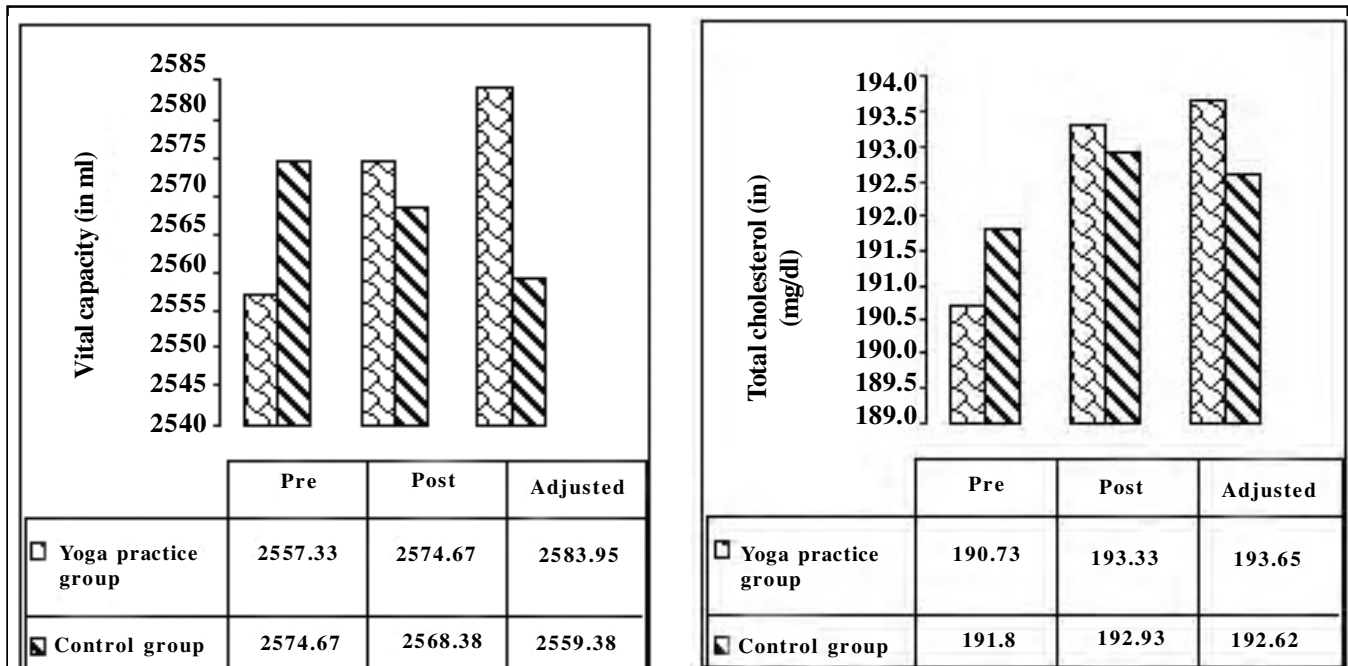


Fig. 1 : Vatal capacity and Total cholesterol for Yoga practice group and control group

the yogic practice group and control group and not in the total cholesterol level.

#### Conclusion :

– The results of the study concluded that there was a significant improvement in vital capacity and not in the total cholesterol level after thirteen weeks of yogic practice.

– It was also concluded from the results of the present study that there was a significant difference between the yogic practices group and control group on vital capacity and not in the total cholesterol level.

#### Authors' affiliations:

S. CHIDAMBARA RAJA, Department of Physical Education and Sports Sciences, Annamalai University, Annamalainagar, CHIDAMBARAM (T. N.) INDIA

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