ISSN No:-2456-2165

Effect of Yogic and Physical Training on Respiration Rate and Lung Capacity of Young Adults

Jagdish Chandra Arya* ; Dr. Divesh Chaudhary**
*Ph.D Scholar, Department of Physical Education, Swami Vivekanand Subharti University, Meerut (U.P.).
** Assistant Professor, Department of Physical Education, Swami Vivekanand Subharti University, Meerut (U.P.).

Abstract:-

- ***Introduction:***

The objective of this study was to investigate the effect of yogic and physical training on respiration rate and lung capacity of young adults. Another purpose of the study was to find out the comparatively better training programs among Yogic and Physical training for young adults.

- ***Methods:***

75 male students of the department of physical education, Swami Vivekanand Subharti University, Meerut were randomly selected for the study. The subjects were divided into three groups i.e. one control and two experimental groups for the study. The age of the subjects was ranged between 17 to 21 years. Criterion measures for this study were different test items for respiration rate and lung capacity such as: To measure respiration rate about the young adults, Manual method was used. To measure lung capacity about the young adults, Spiro Meter was used. To find out the effect of yogic and physical training on respiration rate and lung capacity of young adults, the t-test was used. For the testing of hypotheses, the level of significance was set at 0.05.

- ***Results and Discussion:***

The result reveals that there was significant ($p<.05$) effect of yogic and physical training on respiration rate and lung capacity of young adults. Based on findings and within the limitation of the study it was noticed that effect of yogic and physical training helped to improve speed and cardiovascular endurance of young adults. Since respiration rate and lung capacity of the subject of experiment group was found to be statistically significant since the obtained values was found to be higher than the tabulated value.

Keywords:- *Respiration Rate, Lung Capacity, Yogic Training, Physical Training.*

I. INTRODUCTION

Physical education is the process of education which's goal is at the expertise of human capability by the means of physical sequential movement fixed to realize this outcome. It contains the possession and filtration of motor skills, the optional status of health's development and maintenance of fitness, the attainment of knowledge, and the growth of positive behavior regarding physical sequential bodily movement.

The successful child is nourished, progressed, and specially schooled. Parents are catered for an environment of absolute specialization and devotion created and the potential champion, often devoid of social life, is made, not a representation of but an exception of society, for the hope for achieving a gold medal and the enhancement of Nation's pride. (**Keeney E. 1992)**

The present study is considered with various physiological variables to compile the physiological characteristics of young adults the following physiological variables were taken into consideration: respiration rate, lung capacity, vital capacity, blood pressure, and pulse rate. The physiological side of humans is to enhance the human body capacity to increase the value of oxygen intake to the muscle cell. It can do in several ways by increasing the rate of breathing by increasing the time of breathing by increasing of the rate at blood also increasing the amount of hemoglobin available for oxygen transport, and increasing the rate at which blood flow with increasing the rate at which oxygen is unloaded from the blood at the muscle cell. **(Astrand & Rodahl, 1986)**

In dictionaries, physiology is the science body functioning of living organisms. It has a compound intense bonding with the address of diminishing science. These have a big effect on the life and health status of individuals. It is defined as the degree of the task under specific ambit conditions. Most authors define physical fitness as a capacity of carrying out everyday activities i.e. do daily routine work and have enough energy to face the emergency problem. **(James, 2009)**.

ISSN No:-2456-2165

Good health adds to life quality. Regular exercise and good physical fitness enhance life quality in many ways. Physical fitness and exercise can help us to enhance every aspect of life. Physical activity gives us a platform to use leisure time joyfully. Exercise is a bodily movement performed in series to grow or health status and well being. It is any physical movement that results in physical efforts of required time, amount, and load to get or to be fit. **(Draper N. & Marshall H. 2014)**

II. METHODOLOGY

The subjects of the study were randomly selected in 75 male students of the department of physical education, Swami Vivekanand Subharti University, Meerut were randomly selected for the study. The subjects were divided into three groups i.e. one control and two experimental groups for the study. The age of the subjects was ranged between 17 to 21 years. Criterion measures for this study were different test items for respiration rate and lung capacity such as: To measure respiration rate about the young adults, Manual method was used. To measure lung capacity about the young adults, Spiro Meter was used. To find out the effect of yogic and physical training on respiration rate and lung capacity of young adults, the t-test was used. For the testing of hypotheses, the level of significance was set at 0.05.

➢ *PHYSICAL TRAINING PROGRAM*

S. N.	Day	Physical Training	Duration	Total Duration
1	Monday	Running continuously	20 nin.	
		Normal stretching from toe to head-	10 min.	40 Min.
		60 mtr. 6 repetitions for 90% accuracy.	10 min.	
2	Tuesday	Warm-up	5 min.	
		Leg exercises (active and passive)	10 min.	
		Trunk exercises (active and passive)	10 min.	40 Min.
		Hand exercises (active and passive)	10 min.	
		Stretching with the help of the equipments.	5 min.	
3	Wednesday	Warm-up	10 min.	
		Normal stretching	10 min.	40 Min.
		150 mtr. 6 repetitions for 80% accuracy.	20 min.	
4	Thursday	Warm-up	10 min.	
		Normal stretching	10 min.	40 Min.
		500 mtr 4 repetitions for 75% accuracy.	20 min.	
5	Friday	Warm-up	10 min.	
		Normal stretching	10 min.	40 Min.
		250 mtr 4 repetitions for 80% accuracy.	20 min.	

➢ *YOGA TRAINING PROGRAM*

S. N.	Day	Yogic Training	Duration	Total Duration
1	Monday	Chanting of Manta (Starting Prayer)	03 Min.	
		Surya Namaskar	07 Min.	
		Asanas: Standing Asanas (1-3 Repitation)	20 Min	
		Pranayama: Kapalbhati: Simple (3 Repitation)	03 Min.	40 Min.
		Nadi Shodan: Anulom-Vilom (3 Repitation)	02 Min	
		QRT (Quic Relaxation Technique)	03 Min	
		Finishing Prayer	02 Min	
2	Tuesday	Chanting of Manta (Starting Prayer)	03 Min.	
		Sukshma Vyayam	07 Min.	
		Asanas: Supine Line Asanas (1-3 Repitation)	20 Min	
		Pranayama: Kapalbhati: Right – Left (3 Repitation)	03 Min.	40 Min.
		Nadi Shodan: Surya Shodan (3 Repitation)	02 Min	
		QRT (Quic Relaxation Technique)	03 Min	
		Finishing Prayer	02 Min	
3	Wednesday	Chanting of Manta (Starting Prayer)	03 Min.	
		Surya Namaskar	07 Min.	
		Asanas: Pronation Asanas(1-3 Repitation)	20 Min	
		Pranayama: Kapalbhati: Hold One Nostil(3 Repitation)	03 Min.	40 Min.
		Nadi Shodan: Sheetali (3 Repitation)	02 Min	
		QRT (Quic Relaxation Technique)	03 Min	
		Finishing Prayer	02 Min	

ISSN No:-2456-2165

4	Thursday	Chanting of Manta (Starting Prayer)	03 Min.	40 Min.
		Sukshma Vyayam	07 Min.	
		Asanas: Long Sitting Asanas(1-3 Repitation)	20 Min	
		Pranayama: Kapalbhati: Simple(3 Repitation)	03 Min.	
		Nadi Shodan: Anulom-Vilom (3 Repitation)	02 Min	
		QRT (Quic Relaxation Technique)	03 Min	
		Finishing Prayer	02 Min	
5	Friday	Chanting of Manta (Starting Prayer)	03 Min.	40 Min.
		Sukshma Vyayam	07 Min.	
		Asanas: Twesting Asanas(1-3 Repitation)	20 Min	
		Pranayama: Kapalbhati: Right – Left (3 Repitation)	03 Min.	
		Nadi Shodan: Surya Shodan (3 Repitation)	02 Min	
		QRT (Quic Relaxation Technique)	03 Min	
		Finishing Prayer	02 Min	

III. RESULTS OF THE STUDY

To find out yogic and physical training effect on pre and post respiration rate of young adults in the experimental group and control group, Dependent t-test statistics was used and presented in table-1.

Respiration Rate		**Pre**	**Post**	**t.ratio**
Experimental Group of Yogic Training	**Mean**	24.040	17.480	13.027*
	S.D	3.088	1.782	
Experimental Group of Physical Training	**Mean**	23.320	15.520	14.407*
	S.D	3.158	1.851	
Control Group	**Mean**	24.040	25.240	-1.541
	S.D	3.088	2.146	

TABLE-1:- T-ratio of pre and post respiration rate of young adults in experimental group and control group
*Significant at .05 level
t-value required to be significant at 24 df =1.71

It is evident from table-1 that significant difference was found in yogic training between pre and post respiration rates of young adults in the experimental group as the t-value was found 13.027. This was a higher value than the required value at .05 level of significance, significant difference was found in physical training between pre and post respiration rate of young adults in the experimental group as the t-value was found 14.407. This was a higher value than the required value at .05 level of significance, but insignificant difference was found between pre and post respiration rates of young adults in the control group as the t-value was found -1.541. This was a lower value than the required value at .05 level of significance.

The scores are also illustrated in the figure-1.

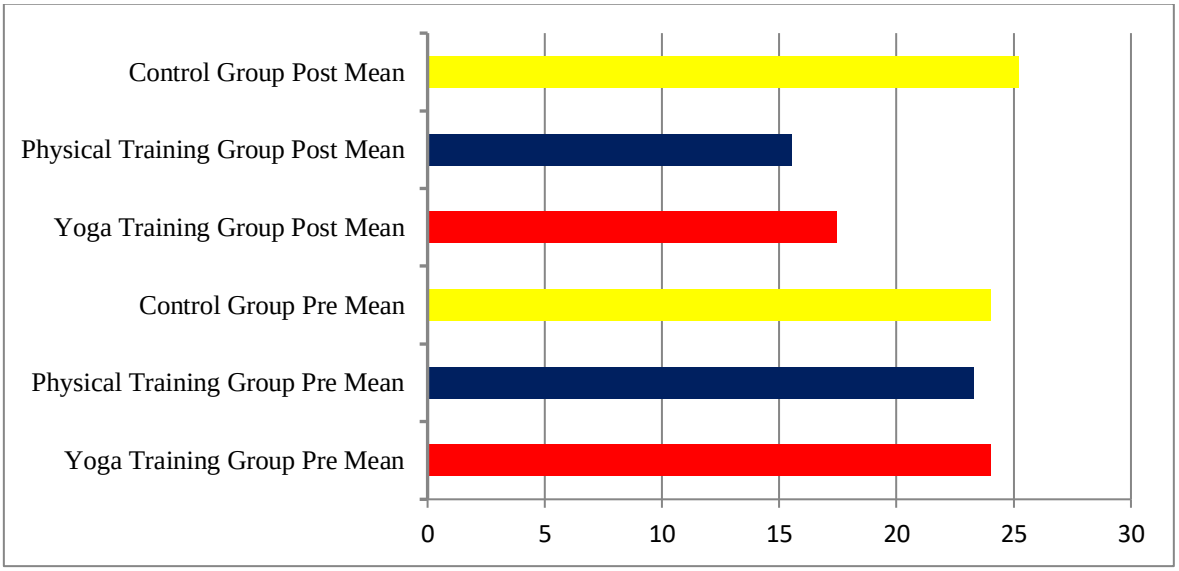

Fig -1

ISSN No:-2456-2165

To find out yogic and physical training effect pre and post respiration rate of young adults in the experimental group after three, six, nine and twelve weeks, Dependent t-test statistics was used and presented in table-2.

Data Collation Duration	Yoga training effect on Respiration Rate					Physical Training effect on Respiration Rate			
			Pre	Weeks	t.ratio		Pre	Weeks	t.ratio
01-03 Weeks	Three Weeks	Mean	24.040	24.080	-.098	Mean	23.320	21.960	4.461*
		S.D	3.088	1.579		S.D	3.158	2.423	
01-06 Weeks	Six Weeks	Mean	24.040	25.040	-3.693*	Mean	23.320	20.360	7.775*
		S.D	3.088	2.188		S.D	3.158	2.343	
01-09 Weeks	Nine Weeks	Mean	24.040	23.040	2.225*	Mean	23.320	16.680	13.565*
		S.D	3.088	1.171		S.D	3.158	1.973	
01-012 Weeks	Twelve Weeks	Mean	24.040	17.480	13.027*	Mean	23.320	15.520	14.407*
		S.D	3.088	1.782		S.D	3.158	1.851	

Table-2:- T-ratio of pre and post respiration rate of young adults in experimental group after three, six, nine and twelve weeks
*Significant at .05 level
t-value required to be significant at 24 df =1.71

It is evident from table-2 that insignificant difference was found in yogic training between pre and after three weeks respiration rate of young adults as the t-value was found -.098. This was a lower value than the required value at .05 level of significance, a significant difference was found in yogic training between pre and after six weeks respiration rate of young adults as the t-value was found -3.693. This was a higher value than the required value at .05 level of significance, significant difference was found in yogic training between pre and after nine weeks respiration rate of young adults as the t-value was found 2.225. This was a higher value than the required value at .05 level of significance and significant difference was found in yogic training between pre and after twelve weeks respiration rate of young adults as the t-value was found 13.027. This was a higher value than the required value at .05 level of significance.

A significant difference was found in physical training between pre and after three weeks respiration rate of young adults as the t-value was found 4.461. This was a higher value than the required value at .05 level of significance, significant difference was found in physical training between pre and after six weeks respiration rate of young adults as the t-value was found 7.775. This was a higher value than the required value at .05 level of significance, significant difference was found in physical training between pre and after nine weeks respiration rate of young adults as the t-value was found 13.565. This was a higher value than the required value at .05 level of significance and significant difference was found in physical training between pre and after twelve weeks respiration rate of young adults as the t-value was found 14.407. This was a higher value than the required value at .05 level of significance.

The scores are also illustrated in the figure-2.

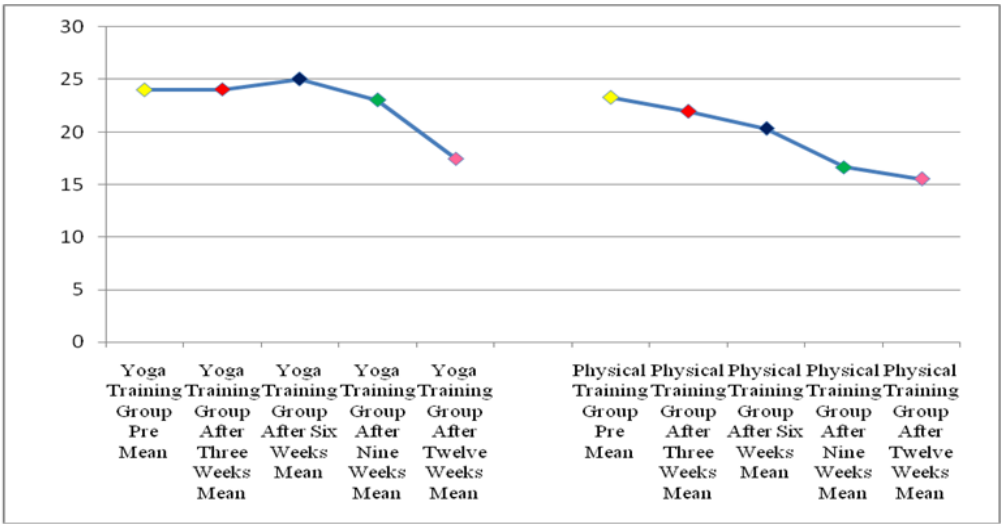

Fig 2

To find out the yogic and physical training effect on pre and post-lung capacity of young adults in the experimental group and control group, Dependent t-test statistics was used and presented in table-3.

ISSN No:-2456-2165

Lung Capacity		Pre	Post	t.ratio
Experimental Group of Yogic Training	**Mean**	5262.00	6476.00	-19.791*
	S.D	393.509	381.094	
Experimental Group of Physical Training	**Mean**	5200.00	6600.00	-22.711*
	S.D	414.326	390.512	
Control Group	**Mean**	5308.00	5272.00	1.674
	S.D	515.525	478.295	

Table-3:- T-ratio of pre and post lung capacity of young adults in experimental group and control group
*Significant at .05 level
t-value required to be significant at 24 df =1.71

It is evident from table-3 that significant difference was found in yogic training between pre and post-lung capacity of young adults in the experimental group as the t-value was found -19.791. This was a higher value than the required value at .05 level of significance, significant difference was found in physical training between pre and post lung capacity of young adults in the experimental group as the t-value was found -22.711. This was a higher value than the required value at .05 level of significance, but insignificant difference was found between pre and post-lung capacity of young adults in the control group as the t-value was found 1.674. This was a lower value than the required value at .05 level of significance.

The scores are also illustrated in the figure-3.

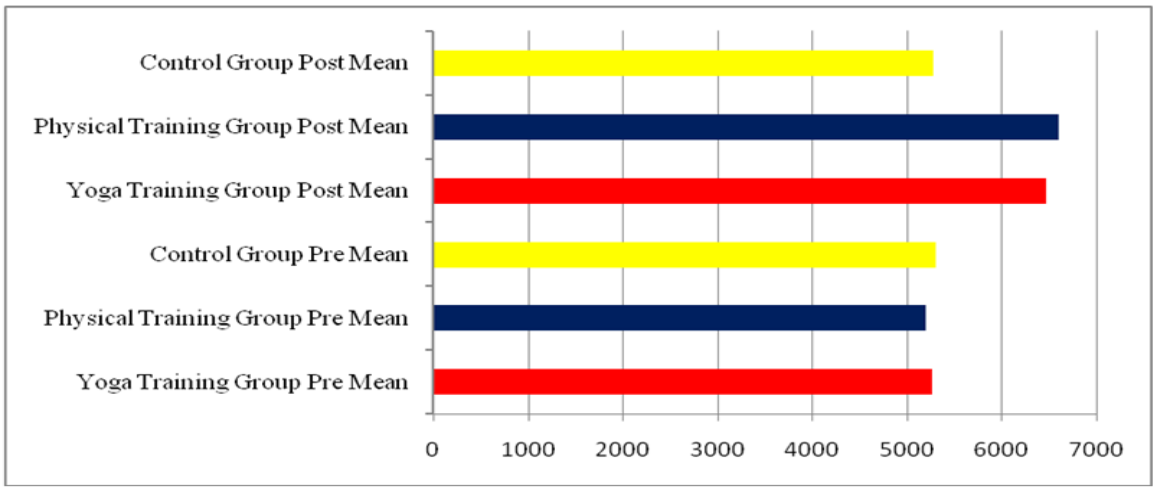

Fig 3

To find out yogic and physical training effect pre and post-lung capacity of young adults in the experimental group after three, six, nine and twelve weeks, Dependent t-test statistics was used and presented in table-4.

Data Collation Duration	Yoga training effect on Lung Capacity					Physical Training effect on Lung Capacity			
			Pre	Weeks	t.ratio		Pre	Weeks	t.ratio
01-03 Weeks	**Three Weeks**	**Mean**	5262	5300	-4.321	**Mean**	5200	5228	-1.231
		S.D	393.509	400.00		**S.D**	414.33	365.74	
01-06 Weeks	**Six Weeks**	**Mean**	5262	5324	-2.544*	**Mean**	5200	5600	-7.071*
		S.D	393.509	360.87		**S.D**	414.33	404.15	
01-09 Weeks	**Nine Weeks**	**Mean**	5262	5636	-7.035*	**Mean**	5200	6428	-21.763*
		S.D	393.509	330.2		**S.D**	414.33	395.31	
01-012 Weeks	**Twelve Weeks**	**Mean**	5262	6476	-19.791*	**Mean**	5200	6600.	-22.711*
		S.D	393.509	381.09		**S.D**	414.33	390.51	

Table-4:- T-ratio of pre and post lung capacity of young adults in experimental group after three, six, nine and twelve weeks
*Significant at .05 level
t-value required to be significant at 24 df =1.71

It is evident from table-4 that significant difference was found in yogic training between pre and after three weeks of the lung capacity of young adults as the t-value was found -4.321. This was a higher value than the required value at .05 level of significance, significant difference was found in yogic training between pre and after six weeks lung capacity of young adults as the t-value was found -2.544. This was a higher value than the required value at .05 level of significance, significant difference was found in yogic training between pre and after nine weeks lung capacity of

ISSN No:-2456-2165

young adults as the t-value was found -7.035. This was a higher value than the required value at .05 level of significance and significant difference was found in yogic training between pre and after twelve weeks lung capacity of young adults as the t-value was found -19.791. This was a higher value than the required value at .05 level of significance.

An insignificant difference was found in physical training between pre and after three weeks of the lung capacity of young adults as the t-value was found -1.231. This was a lower value than the required value at .05 level of significance, significant difference was found in physical training between pre and after six weeks lung capacity of young adults as the t-value was found -7.071. This was a higher value than the required value at .05 level of significance, significant difference was found in physical training between pre and after nine weeks lung capacity of young adults as the t-value was found -21.763. This was a higher value than the required value at .05 level of significance and significant difference was found in physical training between pre and after twelve weeks lung capacity of young adults as the t-value was found -22.711. This was a higher value than the required value at .05 level of significance.

The scores are also illustrated in the figure-4.

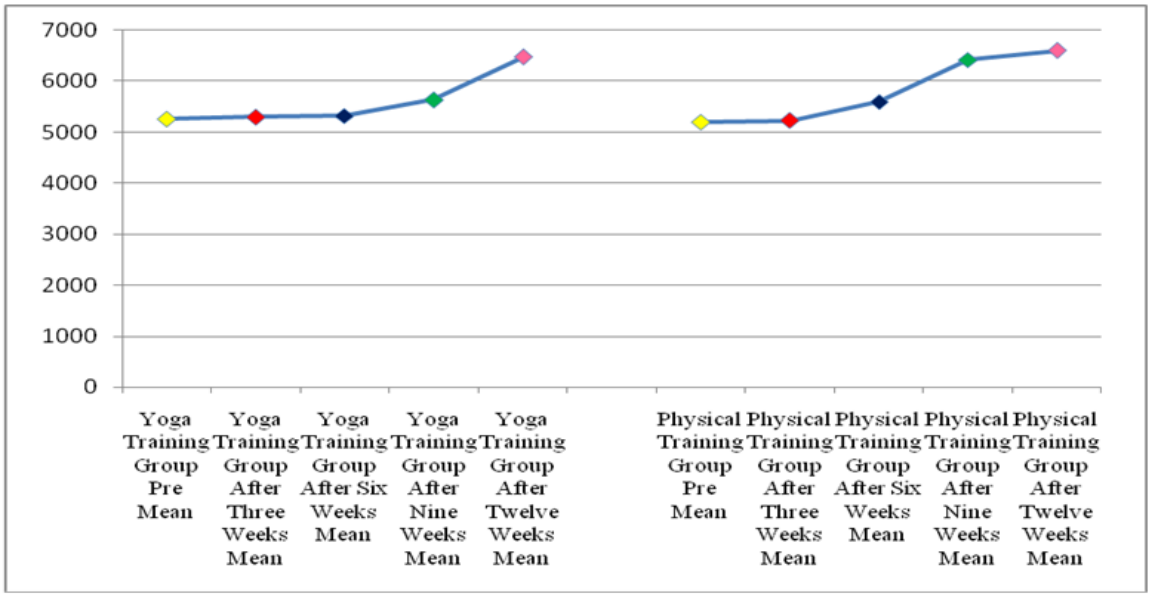

Fig 4

IV. DISCUSSION OF THE RESULTS

The present study was designed to explore comparatively better training between yogic and physical training programs for young adults. The purpose of this study was to find a better training program (yogic training and physical training) for the young adults. Although the research scholar did not interfere with the personal lifestyle of the young adults, some facts may be inaccessible. Which training program (yogic training and physical training) will be more beneficial in looking at the lifestyle of young adults and making their lifestyle more effective, it has been seen in this study. In order to achieve the objectives, Respiration Rate and Lung Capacity of young adults were collected from various scientific aspects and after that the young adults were divided into three groups i.e. one control and two experimental group for the study. After which these groups were trained, after that data were obtained from all these groups again. Before going to the conclusion of the study, it must be understood that the progress of any country depends on its younger generation. His positive contribution definitely helps any society or country to move in the right direction.

The result of the study revealed significant difference between the mean scores of yogic and physical training effect on pre and post Respiration Rate and Lung Capacity of young adults in the experimental group. The mean score of yogic training young adults group were found higher than the control group young adults, but mean score of yogic training young adults were found lower than the physical training young adults group. We cannot deny the fact that physical training has more effect on physical characteristics than physical training because any physical training is more effective than physical training on the Respiration Rate and Lung Capacity of humans. The results of this study also point to the same. The result of present study is also on the line of the studies conducted by Malipatil, R. P. & Patil, S. S. (2016), It was drawn conclusions that after the training of yoga and physical exercise both training have improved physical and physiological Sharma A., & Parihar R. (2016), Results indicated that flexibility and endurance was improved significantly and thereby improved the academic performance of the students significantly for the experimental group irrespective of gender. The study has important implications for school students for employing yogic exercises in their school curriculum. Cao Z. B., Maeda A., Shima N. & et. al. (2007), These findings from the

present investigation provide evidence of significant improvements in physical performance related to the risk factors of falling and safe gait strategy with a combined exercise intervention program in community-dwelling elderly women. The results suggest this exercise intervention could be an effective approach to ameliorate the risk factors for falls and to promote safer locomotion in elderly community-dwelling women.

REFERENCES

[1]. Astrand P. Rodahl. (1986), *"Physiological basis of exercise"*, Textbook of work physiology, Mc Graw Hill Book Company, New York: Mc-Graw–Hill, 3rd edition, pp. 8-9.
[2]. Bera T. K. & Rajapurkar M. V. (1993), *"Body composition, cardiovascular endurance and anaerobic power of yogic practitioner"*, Indian Journal of Physiology and Pharmacology, Vol. 37, pp. 225-225.
[3]. Bhole M.V.(1985), "*Therapeutic application of yoga Techniques*", Yoga Mimamasa, Vol. 30, No. 2 & 3, pp. 20-36.
[4]. Blank S. E. (2006), "*Physiological Responses to Iyengar Yoga Performed by Trained Practitioners*", Journal of exercise physiology online, Vol. 9 No. 1.
[5]. Devi K. S. & Rani M. U. (2013), "*Effect of yogic exercise and physical exercise on physical health and mental health*", Journal of Evolution of Medical and Dental Sciences, Vol. 2 No. 18, pp. 3031-3040.
[6]. Fevertein G. & Bodian S.,& et al.(1979), *"Living Yoga"*, The Putnam Publishing Group, New York, pp. 10.
[7]. Gandhi S. & Anbalagan P., (2016), "*Effect of yogic practices on the selected physiological variables among the middle aged men*", International Journal of Physiology, Nutrition and Physical Education, Vol. 1 No. 2, pp. 91-95.
[8]. Ganguly S.K. Gharote M.L. & Bera T.K. (2003), "*Yoga in Relation to Health Related Physical Fitness and Academic achievement of School Boys*", Yoga Mimamsa, Vol. 34, No. 3 & 4, pp. 188-213.
[9]. Gore M. M. (1980), "*Physiology of yoga Practice*", Yoga Mimamsa, Mudranalaya, Lonavla, pp. 200.
[10]. Lega S. (2010), "*Effects of yoga training on cardio-respiratory function on school children*", Abstracts and souvenir, "National conference and Exhibition on recent trends in physical education health education and sports technology", From 5-7 feb, Noida College of Physical Education Noida, pp-26.
[11]. Morehouse L. E. & Miller A. T. (1976), *"Physiology of exercise"*. 7Th Edition,
[12]. Rajakumar J. (2010), "*The Impact of Yogic Practices and Physical Exercises on Selected Physiological Variables among the Inter-Collegiate Soccer Players SADHANA"*, Journal for Bloomers of Research, Vol. 2, No. 2.
[13]. Verma J.P. (2009), *A Text Book On Sports Statistics.* New Delhi, India: Sports Publication.