

## Impact Of Yogic Practices And Resistance Training On Muscular Endurance And Explosive Power Variables In College Students

Dr. C. Suresh<sup>1</sup> & R. Pravin Raj<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Physical Education and Sports Sciences, SRM Institute of Science and Technology, College of Science and Humanities, Kattankulathur, Chengalpattu, Tamilnadu, India. suresh@srmist.edu.in

<sup>2</sup>M.Phil Research Scholar, Department of Physical Education and Sports Sciences, SRM Institute of Science and Technology, College of Science and Humanities, Kattankulathur, Chengalpattu, Tamilnadu, India. pravinraj8521@gmail.com

### ABSTRACT:

The purpose of the study was to find out the impact of yogic practices and resistance training on muscular endurance and explosive power variables in college students. Sixty (N=60) college students from V.T.M College of Arts and Science in Arunmanai, Tamilnadu, India were chosen at random. The participants were split into three classes of twenty (n=20) each: yogic practice (n=20), resistance exercise (n=20), and control (n=20). The participants were between the ages of 18 and 21. Selected dependent variables namely such as muscular endurance and explosive power. Muscular endurance tested by sit ups test unit of measurement in scores. Explosive power tested by standing broad jump unit of measurement in meters. The results were interpreted using descriptive statistics and Covariance Analysis (ANCOVA) and Scheffe's test was used. The 0.05 degree of significance was used in all situations since three groups were compared. College students' physical fitness variables, such as muscular endurance, were found to be substantially enhanced by yogic practice. It was discovered that yogic practice greatly enhanced physical health variables in college students, such as explosive power.

### Keywords:

Yogic Practices, Resistance Training, Muscular Endurance, Explosive Power.

Article Received: 01march 2021, Revised: 05march 2021, Accepted: 18 march 2021

### INTRODUCTION

Yoga is a way of life for many people. Its key objective is to keep the mechanism in balance at all costs. Both Yoga schools of thought stress the importance of mental relaxation, as you only can see by water when it is quiet, as the saying goes. Yoga Darshan is also a genuine Indian philosophical discipline or Yoga Philosophy (Brahma Vidhya). This is the culmination of thousands of years of human knowledge and insights into physiology, psychology, ethics and spirituality, all for the good of humankind. Yoga is based primarily on the reconciliation of the human soul or Atma to the universal soul or Paramatma. According to yoga philosophy, one can return to a primitive state by purifying his mind and altering thought patterns, in which the human self was nothing more than a part of the Divine Self. This is the definition of the term samadhi. The ultimate objective of the yogi is to see the universe in its true light and to embrace reality in all its forms.

The word 'yoga' means 'unity' in Sanskrit. The ultimate objective of a yogi is to achieve this "union" with the Eternal Self through certain physical and mental exercises. It is attributed that Hiranyagarbha (the Cosmic Womb) promotes the conventional yoga approach that has led to all other yoga schools. Maharishi Patanjali must be credited with some knowledge of yoga and its practise, such as yogasanas and pranayama. Patanjali's Yoga Sutra systematised the numerous yogic rituals and customs of his time by encapsulating them in aphorisms. In this monumental work, he describes the purpose of yoga as self-knowledge and sets out the eight steps or methods for it. There are now many schools or types of yoga, each stressing different aspects of the practice. Yoga is now the most diverse spiritual activity in the world. In recent years, it has gained dramatic prominence, and more than 30 million people around the world accept the message of peace.

### Methods:

Sixty college students (N=60) were chosen at random from T.M College of Arts and Science in Arunmanai, Tamilnadu, India. The participants were split into three groups at random: yogic (Group I), resistance (Group II), and a control group that did not receive any therapy (Group III). Each class had twenty (n=20) participants. All of the participants were tested for criterion variables such as muscular endurance, explosive strength, flexibility, speed, and agility prior to the experiment. For nine weeks, the yogic practises group received instruction three times a week on Mondays, Wednesdays, and Fridays. For nine

weeks, the resistance training programme trained three times a week on Tuesdays, Thursdays, and Saturdays. After the study phase ended, both of the participants were tested again for the criteria variables that had been chosen. The discrepancy between the original and final means on criteria variables was used to determine the effect of each subject's treatment. The collected data were evaluated using ANCOVA to determine the statistical importance of the discrepancy. To confirm the theory, the 0.05 standard was used in both situations.

**Table - I**

**COMPUTATION OF ANALYSIS OF COVARIANCE AND POST HOC TEST ON MUSCULAR ENDURANCE**

Means	YGPG	RSTG	CG	SV	SS	DF	MS	'f'	Sig
Pre test	29.20	30.05	29.75	B	7.43	2	3.71	0.37	0.69
SD	2.94	3.59	3.12	W	567.90	57	9.96		
Post test	31.95	35.00	29.85	B	268.23	2	134.11	12.54*	0.00
SD	2.96	3.76	3.01	W	609.50	57	10.69		
Adjusted post test	32.39	34.63	29.77	B	8.83	2	118.28	79.14*	0.00
				W	525.81	56	1.49		

\* at 0.05 level.

Table I illustrates the analysis of variance. The "F" ratio of 0.37 on the pre-test means of the groups was initially not significant ( $f=0.37$ ,  $p=0.69$ ,  $p>0.05$ ). The 'F' ratio of 12.54\* on post test means was significant ( $f=12.54^*$ ,  $p=0.00$ ,  $p<0.05$ ) at the 0.05 level ( $f=12.54^*$ ,  $p=0.00$ ,  $p<0.05$ ). This shows that the groups' post-test means were substantially different. Modified post test means and analysis of covariance were calculated after taking the pre and post test means into account. Experimental group I had an adjusted mean of 32.39, experimental group II had an adjusted mean of 34.63, and the control group had an adjusted mean of 29.77 for muscular endurance. On modified means, the obtained 'F' value was 79.14\*. The important 'p' value was less than 0.05, indicating that there were

significant variations in the modified post-test means of the subjects' muscular endurance.

**Table - II****Post Hoc Test on Muscular Endurance**

YGPG	RSTG	CG	MD	Sig
32.39	34.63	-	2.24*	.00
32.39	-	29.77	2.62*	.00
-	34.63	29.77	4.86*	.00

\* at 0.05 level

Table-II The results on post hoc analysis, since they indicated a significant improvement.

Yogic practice group Vs Resistance training group (MD: 2.24\*,  $p < 0.05$ ). Yogic practice group Vs Control group (MD: 2.62\*,  $p < 0.05$ ). Resistance training group Vs Control group (MD: 4.86\*,  $p < 0.05$ ).

**Table - III****COMPUTATION OF ANALYSIS OF COVARIANCE AND POST HOC TEST ON EXPLOSIVE POWER**

Means	YGPG	RSTG	CG	SV	SS	DF	MS	'F'	Sig
Pre test	2.34	2.35	2.33	B	0.00	2	.001	0.33	0.71
SD	0.06	.05	0.05	W	0.19	57	.003		
Post test	2.36	2.39	2.34	B	0.03	2	.014	4.59*	0.01
SD	0.06	0.04	0.05	W	0.18	57	.003		
Adjusted post test	2.36	2.38	2.34	B	0.18	2	.008	41.71*	0.00
				W	0.02	56	.000		

\*at 0.05 level.

At beginning, The ratio 'F' was 0.33 on the pre-test means of the groups ( $f=0.33$ ,  $p=0.71$ ,  $p > 0.05$ ) not significant. The post test ratio of 'F' of 4.59\* was significant in 0.05 level ( $f=4.59$ \*,  $p=0.01$ ,  $p < 0.05$ ). This indicates that the post-test methods of the groups differed significantly. Adjusted post test means were calculated after taking into account the pre and post test means, and analysis of covariance was performed.

Experimental group I had an adjusted explosive power of 2.36, experimental group II had an adjusted explosive power of 2.38, and the control group had an adjusted explosive power of 2.34. On modified means, the obtained 'F' value was 44.71\*. The significant 'p' value was less than 0.05, indicating that there were significant variations between the modified post test means on the subjects' explosive capacity.

Table – IV

## Post Hoc Test on Explosive Power

YGPG	RSTG	CG	MD	Sig
2.36	2.38	-	0.02*	.003
2.36	-	2.34	0.04*	.002
-	2.38	2.34	0.04*	.002

\* at 0.05 level

The adjusted means to be significant at the 0.05 stage in a post hoc study. Yogic practice group Vs Resistance training group (MD: 0.02\*,  $p < 0.05$ ). Yogic practice group Vs Control group (MD: 0.04\*,  $p < 0.05$ ). Resistance training group Vs Control group (MD: 0.04\*,  $p < 0.05$ ).

### Discussion on Findings:

The findings revealed that yogic practice and resistance training enhanced selected criterion variable such as muscular endurance of college students. The resistance training group performed significantly better than the yogic training group in terms of muscular endurance according to the post hoc study: the conclusion which is in agreement with those of major & Sivakumar. (2019), Tiana et al., (2010 and Sandor et al (2009). Resistance training influences muscle growth by improved production of myofibril, which improves muscle fibres' thickness. As the massive skeletal muscles in body builders and others illustrate, this extra structure results in hypertrophy. Extension of the muscle. That is why training in strength and yoga help improve muscle resistance. This is why

The findings of the present study proved that, muscular endurance significantly improved due to yogic practices and resistance training which is in the agreement to the previous researches.

The findings revealed that yogic practice and resistance training enhanced selected criterion variables such as explosive power of college students. The resistance training group performed significantly better than the yogic training group in terms of explosive strength according to the post hoc study: the conclusion which is in agreement with those of Edgar et al., (2020), Thenmozhi et al., (2019) and Thalita et al (2017). College students' explosive strength improves dramatically as a result of yogic practice and resistance training. The physiological changes that contribute to explosive strength include stimulation increases and an imbalance in the breakdown and synthesis of ATP and other muscle proteins. In yogic practice and resistance training, the muscle is made to contract against resistance with proper training. To demonstrate a substantial reduction in muscle ATP. Within the load phase's reported duration, there was severe exhaustion.

The findings of the present study proved that, explosive power significantly improved due to yogic practices and resistance training which is in the agreement to the previous researches.

### Conclusion:

College students' physical fitness variables, such as muscular endurance, were found to be substantially enhanced by yogic practice. It was discovered that yogic practice greatly enhanced physical health variables in college students, such as explosive power.

**Author Contributions:** CS and PR designed the concept and conducted the study complete the raw data, does statistical analysis, generate the results and drafted the manuscripts. All authors have read and agreed to the published version of the manuscript.

**Funding:** The research received no funding or support from any of the agencies

**Conflicts of Interest:** The authors declare no conflict of interest.

**Ethical approval:** Not applicable

**Availability of data:** All available data has been presented in the study.

**Acknowledgments:** Authors wish to thank Dr.R.Mohanakrishnan, Associate Director of Sports, HOD, Department of Physical Education and Sports Sciences, College of Science and Humanities, Kattankulathur, Chengalpattu, Tamilnadu, India for his support towards research.

## Reference:

Skelton DA, Young A, Greig CA, Malbut KE. Effects of resistance training on strength, power, and selected functional abilities of women aged 75 and older. *Journal of the American Geriatrics Society*. 1995 Oct;43(10):1081-7.

Saroja m. Effects of complex training and the combined effects of complex training and yogic practices on selected physical and physiological variables among college boys. *Yoga Mimamsa*. 2012 Oct 1;44(3).

Ibrahim S, Ahmed SA, Ahmed SM, Ahmed SK. Football Plyometric and sprint training on Hormones and Fitness el-ements among underweight College students. *Entomol Appl Sci Lett*. 2020;7(3):23-31.

Govindasamy K. Effect of yogic practice on selected biochemical variables among obese middle age school boys. *International Journal of Yogic, Human Movement and Sports Sciences*. 2017;2(2):393-6.

Galvão DA, Taaffe DR. Resistance exercise dosage in older adults: single-versus multiset effects on physical performance and body

composition. *Journal of the American Geriatrics Society*. 2005 Dec;53(12):2090-7.