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Comparative Effects of Yogic Practices and Physiotherapy Exercises on Peak Expiratory Flow Rate among Low Back Pain for Middle Age Men

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Abstract

The present study was designed to find out the comparative effects of yogic practices and physiotherapy exercises on peak expiratory flow rate among low back pain for middle age men. It was hypothesized that there would be significant differences in forced vital capacity among low back pain for middle age men due to the influences of comparative effects of yogic practices and physiotherapy exercises . To achieve the purpose of the study, 45 low back pain for middle age men from Chennai city aged between 30 to 40 years. The Experimental group I, II and III underwent comparative effects of yogic practices and physiotherapy exercises for the period of 6 weeks of an hour in the morning. The control group was not exposed to any specific training but they participated in the regular activities. The pre-test and post-test were conduct before and after the training for four groups. The data pertaining to the variables collected from the three groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance.

Keywords: Yogic Practices, Physiotherapy Exercises, Peak Expiratory Flow Rate.

Introduction

The subtle anatomy of the humans is divided into five energetic sheaths known as 'pancha kosha'. Pancha, meaning five and kosha, meaning layer or sheath. This ideology describes the human being "*as multi-dimensional, with the source or foundation in a spiritual dimension."* The so-called 'spiritual dimension' is pure consciousness which is hidden by the other four koshas, the outermost layer being the most dense, physical body. Each kosha can be thought of as energy vibrating at a different frequency. The physical body therefore vibrates at the slowest rate and the 'inner light of consciousness' or 'atman' vibrates at fastest rate or frequency.

The people should not be surprised that backache is so common when we understand the highly complex mechanics involved in the functioning of the spinal column. Since man became a biped, the center of gravity (COG) has become narrowed to a small zone (the area of one foot) as compared to the wide area of the center of gravity when we were four legged animals. The brunt of the weight of entire body has to be borne by the spinal column. While having to do this the spinal column also has to allow for enormous degree of flexibility. This is ensured by a highly complex organization of various anatomical structures such as bones, discs, ligaments, tendons, nerves, blood vessels and strong muscles. Any one of these structures could be injured or affected by diseases or subjected to excessive stress and strains thus contributing to pain in most mobile parts of the spine namely the neck and lumbar region.

Lumbosacral pain has been a recognized human affliction for a long time. Hippocrates also talks about lumbosacral pain. In western medicine, we find the very first reports on naked eye descriptions of the normal and degenerate spine in the writings of Vesalius in 1555. Virchow first described what is now known as a lumbar disc prolapse in 1875. Middleton and Teacher first described lumbar disc herniation. Goldthwaite in 1905 described the result of manipulating the lower back of a patient who was thought to be suffering from a sacroiliac subluxation.

Yoga is an ancient Indian practice which involves moving the body and mind to achieve balance and well-being. The purpose of traditional yoga is for each individual to be healthy, both physically and mentally, and able to reach his ot her highest potential as a person. Practicing yoga as a lifestyle can be beneficial for individuals with disabilities or chronic health conditions through both the physical postures and breathe work. Each pose can be modified or adopted to meet the needs of the student. The word yoga originated from the Sanskrit word YUJ, which meas to bind or unite together. This is the true union of jeevathma with paramathma.

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Aim of the Study

The present study was designed to find out the comparative effects of yogic practices and physiotherapy exercises on peak expiratory flow rate among low back pain for middle age men.

Hypothesis

1. It was hypothesized that there would be significant differences on Peak expiratory flow rate among Low back pain for middle age men due to comparative effects of yogic practices and physiotherapy exercises groups than the control group.

Review of Related Literature

Tiken, Kosana, Joy and Inaobi (2002) have conducted a study on influence of specific yoga and aerobic exercise on physical fitness of SAI (NERC IMPHAL) STC Athletes. 30 boys and 30 girls from SAI NERC Imphal were divided into two groups according to their mean age and height of 17.5 years and 15 years and 172.8 cms and 156.4 cms respectively. Training was given twice in a week for four months. Vertical jump to test explosive power, push ups and sit ups to test strength endurance, sit and reach to test Peak expiratory flow rate , 50 yards dash to test speed and 12 min run walk to test endurance were conducted for aerobic exercise and yoga group before the training and after the two months and four months of training. It was concluded that (i) Improvement of physical fitness assessed on three selected physical fitness tests after four months of yoga and aerobic had justified the fact that both yoga and aerobic exercise were effective in developing physical fitness and (ii) in yoga and aerobic exercise groups, boys were found superior to girls group in sit and reach (Peak expiratory flow rate) and 12 min run – walk (endurance), 50 yards (speed).

Methodology

For the purpose of the study, 60 Low back pain for middle age men from Chennai aged between 30 to 40 years were selected. They were equally divided into four groups: experimental group I (yogic practices), Experimental group II (physiotherapy), Experimental group III (yogic practices & physiotherapy) and control group (no intervention). This study employed the experimental random group design, comparative effects of yogic practices and physiotherapy exercises as the independent variable and Peak expiratory flow rate as the dependent variable. The training scheduling comprises of six days per week for the maximum of one hour for six weeks. The data were collected before training as pre-test from four groups. After six weeks of comparative effects of yogic practices and physiotherapy exercises, data were again collected from all the three experimental groups and control group. The equipment used to measure the level of Peak expiratory flow rate through standard equipment. Analysis of covariance (ANCOVA) was used to find out the significant differences among the groups. The level of significance was fixed at 0.05%.

Result and Discussion

Peak expiratory flow rate was measured through standardized equipment. The pre and post test means of the experimental groups and control group statistically analyzed to find out the significance.

Table 1. Computation of analysis of covariance of peak expiratory flow rate (total scores in liters)

	Yogic	physio	Combined	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	582.00	579.33	581.67	578.7	Between	124.58	3	41.53	0.05
					Within	45840.00	56	818.57	
Post Test Mean	599.00	602.33	609.33	581.7	Between	6224.58	3	2074.86	2.72
					Within	42780.00	56	763.93	
Adjusted Post Test Mean	597.54	603.33	608.18	583.3	Between	5227.74	3	1742.58	25.94
					Within	3694.31	55	67.17	
Mean Diff	17.00	23.00	27.67	3.00					

Table value at 0.05 level of confidence for 3 and 56 (df) is.2.77, 3 and 55(df) is 2.77 .

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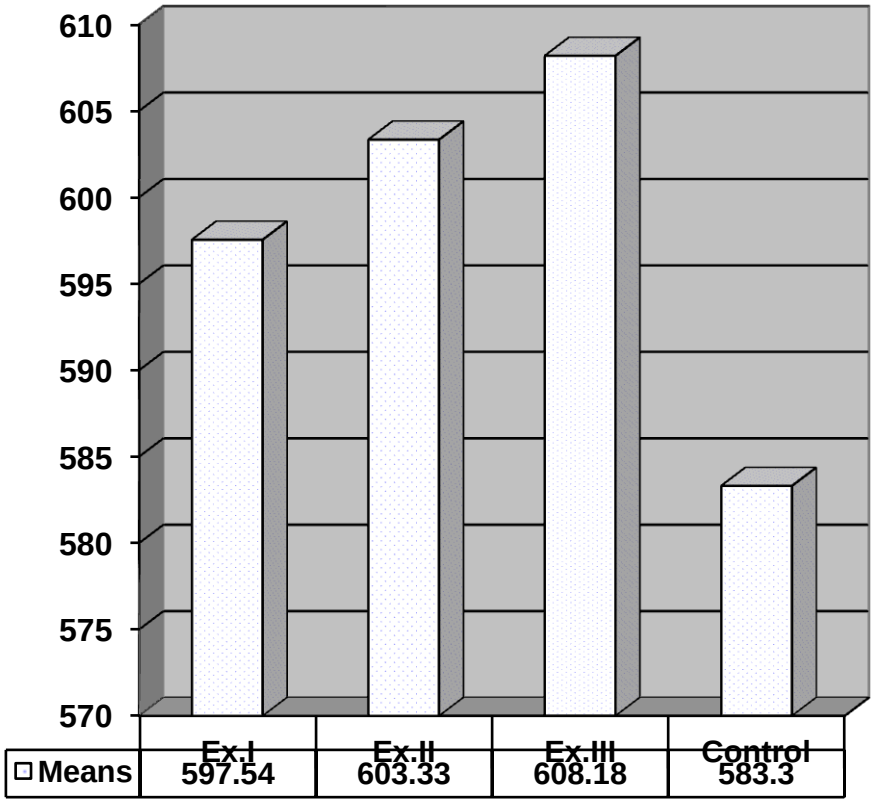
* Significant at 0.05 level.

Table 2. *Scheffe's Confidence Interval Test Scores on Peak Expiratory Flow Rate (Scores in litres)*

MEANS				Mean Difference	Required . C I
Yogic	physio	Combined	Control		
597.5	603.3			5.8	8.6
597.5		608.2		10.6*	8.6
597.5			583.3	14.3*	8.6
	603.3	608.2		4.8	8.6
	603.3		583.3	20.1*	8.6
		608.2	583.3	24.9*	8.6

***** Significant

Figure I. Bar Diagram on Ordered Adjusted Means of Peak Expiratory Flow Rate (Scores in litres)



The Table shows that Scheffe's confidence interval values of Peak expiratory flow rate of yogic practices with and without diet modification groups and control group of Low back pain for middle age men. The findings of the study on Peak expiratory flow rate reveal that the experimental groups namely EX.GR-I (yogic practices), EX.GR-II (physiotherapy) and EX.GR-III (combined) had significantly improved after the training. Besides, the results of the study indicated that there was significant difference between the EX.GR-I (yogic practices), EX.GR-II (physiotherapy) and EX.GR-III (combined).

Discussion on Hypothesis

The hypothesis results shows that the calculated 'F' value is greater than the table value on the Peak expiratory flow rate among Low back pain for middle age men for post test scores as Peak expiratory flow rate

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is increased. This proves that there was significant difference between the experimental groups and control group. Hence the hypothesis was accepted at 0.05 level of significance.

Conclusion

There was a significant improvement in peak expiratory flow rate of experimental groups when compared to the control group. Combined group (Yogic practices with physiotherapy) group has shown mild improvement than the Yogic practices group and physiotherapy)group. .

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