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Impacts of selected yogasanas on low back pain for middle aged group women

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Abstract
The present investigation was to find out the impacts of selected yogasanas practices on low back pain for middle aged women. To achieve the purpose of study forty-five individuals from Sivananda Yoga Centre Puthur, Palakkad aged between 35 to 45 years who suffer from low back problem were selected as subjects for this study. They were divided into three equal groups (N=15): Group I without undergoes any asana, Group II underwent general asana and Group III underwent selected therapeutic asana. The training regimen lasted three days a week for six weeks. To study the effects of three groups' flexibility and range of pain were selected as variables for the study and tested before and after the training period. The data obtained from all the groups before and after the experimental period were statistically analysed to check whenever the "F" ratio was found to be significant pre and post-test means. Further the significance of mean difference of pairs of adjusted means and final mean were tested for significance by applying Scheffe's Post-hoc Test. The level of significance was fixed at 0.05 level of confidence.

Keywords: Yogasanas, flexibility and range of pain, group women, low back pain

Introduction

Yoga is a way of life, an integrated system of education for the body, mind, and inner spirit. This art of right living was perfected and practiced in India thousands of years ago but, since yoga deals with universal truths; its teachings are as valid today as they were in ancient times. Yoga is a practical aid, not a religion, and it techniques may be practiced by Buddhists, Jews, Christians, Muslims, Hindus, and atheists alike. Yoga is union with all; Yoga is the union of the body, mind, emotions and intellect. Sage Patanjali penned down this subject in his treatise known as Yoga Sutras of Patanjali. Recent days due to lack of physically inactive and fault eating habits leads the middle aged people prone to lot of physical ailments, metabolic and muscular-skeletal and problems. Expressly middle aged women suffer lot due to low back problem. Now a days yogasana practices play a vital role in enhancing the fitness level and reducing the low back problems. Keeping this in mind the scholar interested to develop two different modules of yogasana for treating low back problems.

Back Pain

Statistics show that eight out of ten people will suffer some form of back pain at some stage of their lives, the most common area being the lower back, or lumbosacral spine. There are four areas to work on to overcome or avoid developing back pain: Posture and daily movement habits, strengthening the abdominal, strengthening the back, and stretching the back. Before discussing each of these, it is important to review the anatomy of the back. A strain produces symptoms of mild to moderate pain, muscle spasms, decreased muscle strength, and reduced range of motion.

Pain level equipment: Modified sit and reach equipment

Under the guidance of medical doctor and physical education professionals have designed pain level equipment, which can show the back pain level in an individual. Sitting on the floor with both legs stretched forward, knee not bending and touching the equipment, one should bend and try to touch different levels marked on the equipment. Different level pains are given below. Measurements are marked in the cm and percentage.

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Pain scale was developed based on the level of pain-Very high, High, Low and Nil.

Methods
This research study is exploring the impacts of selected yogasanas on low back pain for middle aged group women. To achieve the purpose of study individuals who suffer from low back problem and working as Lecturers, Teachers, Typist, Clerks, who had attend yoga class a case history of the ailment (low back pain) were selected as subjects for this study. Further a qualified medical officer who made a thorough medical examination to ascertain the possible causes for back pain and isolated those subjects who would not suffer any contra-indication owing to administration of yogasanas screened the women. Forty-five individuals from Sivananda Yoga Centre Puthur, Palakkad aged between 35 to 45 years. Forty-five subjects were randomly allocated into three groups, each comprising fifteen participants. Group I (N=15) without any asana practice, Group II (N=15) only the general asanas

fitness and Group III (N=15) served as the Underwent selected therapeutic asanas.

The training regimen spanned six weeks, with sessions conducted three days per week during evening hours (4.30pm to 6pm). The selected Variables namely flexibility was measured by sit and reach test and range of pain was measured by pain level equipment (modified sit and reach equipment). Prior to commencing the experiment, all subjects were tested on selected variables as pre-test, one day before training initiation. After pre-test experimental groups underwent respective yogasana practices for a period of six weeks. After the six-week training period, a post-test was administered one day following the conclusion of the training to evaluate any alterations in the criterion variables. Analysis of covariance (ANCOVA) was employed to ascertain notable variances among the experimental groups regarding each criterion variable, with a confidence level of 0.05 deemed suitable. Due to the participation of three groups, the Scheffe's test was employed as a post-hoc examination.

Table 1: Analysis of covariance on flexibility

	Group 1	Group 2	Group 3	Source of variance	Sum of Squares	DF	Mean square	F-Ratio
Pre-test	18.46	18.33	18.53	B	0.31	2	0.15	0.53
				W	122.80	42	2.92	
Post-test	18.33	20.06	26.33	B	531.37	2	265.68	38.53*
				W	289.60	42	6.89	
Adjusted mean	18.33	20.06	26.33	B	532.06	2	266.03	37.75*
				W	288.89	41	7.04	

*Level of significance at 0.05

Table-I reveals that the obtained mean values of pre-test and post test scores of flexibility on Group I 18.46 and 18.33, Group-II 18.33and 20.06 Group-III 18.53 and 26.33 respectively; the obtained and the obtained F ratio is 38.53. Since the obtained F ratio of 38.53 for post-test means on flexibility is higher than the required table value of 3.21, it is found to be significant at 0.05 level of confidence for 2 and 42 degrees of freedom.
The adjusted post-test means on flexibility of Group I, Group II and Group III are 18.33, 20.06 and 26.33respectively and

the obtained F ratio is 37.75. Since the obtained F ratio of 37.75 for adjusted post-test means on speed is higher than the required table value of 3.21, it is found to be significant at 0.05 level of confidence for 2 and 41 degrees of freedom.
The results of the study indicate that there is a statistically significant difference among the adjusted post-test means group I, group II and control group on flexibility. To determine which of the paired means had a significant difference, the Scheffe's test was used as a post-hoc test and the results are presented in table-III.

Table 2: Scheffe's test for the difference between the adjusted post-test mean on flexibility

Group I	Group II	Group III	MD	CI
18.35	20.05	-	1.7	
18.35	-	26.34	7.99	2.46
-	20.05	26.34	6.29	

Table III shows that the adjusted post-test means differences of the means without undergo any type of asanas training group (Group I), undergo only the general asanas training group (Group II) and undergo selected therapeutic asanas (Group III) are 1.7, 7.99, and 6.29 respectively, which are lesser than the confidence interval value of 2.46for insignificance at 0.05 level of confidence for 2 and 41 degrees of freedom. It also shows that the adjusted post-test mean differences on flexibility between undergo only the general asanas training group (Group II) and undergo selected therapeutic asanas (Group III) are 7.99 and 6.29 respectively and higher than the confidence interval value of 2.46 for significance at 0.05 level of confidence for 2 and 42 degrees

of freedom.
The study results show statistically significant differences between the adjusted post-test means of the general asanas training group (Group II) and selected therapeutic asanas (Group III) had higher significant changes on flexibility to higher than the confidence interval value of 2.46 for significance at 0.05 level of confidence for 2 and 41 degrees of freedom.
The mean values of without undergo any type of asanas training group (Group I), general asanas training group (Group II) and selected therapeutic asanas (Group III) on flexibility are graphically represented in Figure-1.
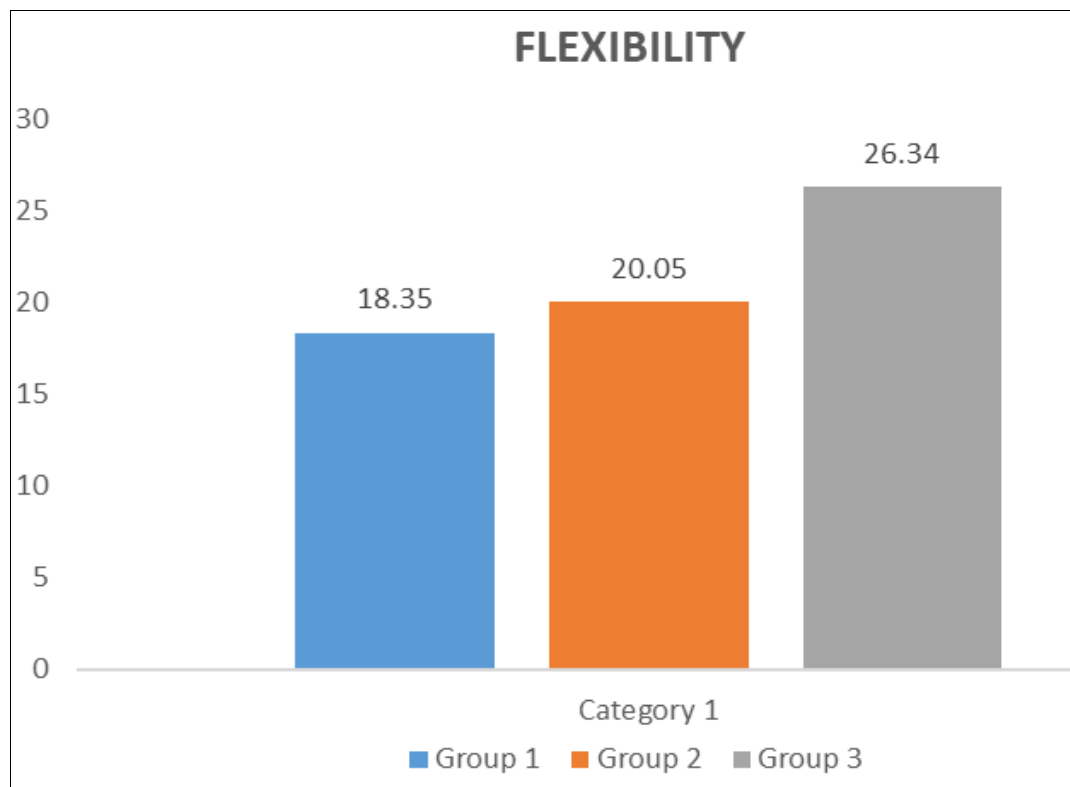
Fig 1: Bar diagram showing the adjusted post-tests mean values on flexibility

Table 3: Analysis of covariance on range of pain

	Group 1	Group 2	Group 3	Source of variance	Sum of Squares	DF	Mean square	F-Ratio
Pre-test	33.33	34.00	34.66	B	17.77	2	8.88	0.25
				W	1440.00	42	34.28	
Post-test	34.66	30.66	26.00	B	404.44	2	202.22	4.48*
				W	1893.33	42	45.07	
Adjusted mean	33.33	30.00	26.00	B	455.97	2	227.98	5.46*
				W	1710.34	41	41.71	

*Level of significance at 0.05

Table-II reveals that the obtained mean values of pre-test and post test scores of range of pain on Group-I 33.33 and 34.66, Group II 34.00 and 30.66 Group-III 34.66 and 26.00 respectively; the obtained and the obtained F ratio is 4.48. Since the obtained F ratio of 4.48 for post-test means on range of pain is higher than the required table value of 3.21, it is found to be significant at 0.05 level of confidence for 2 and 42 degrees of freedom.

The adjusted post-test means on range of pain Group I, Group II and Group III are 33.33, 30.00, and 26.00 respectively and the obtained F ratio is 5.46. Since the obtained F ratio of 5.46for adjusted post-test means on speed is higher than the required table value of 3.21, it is found to be significant at 0.05 level of confidence for 2 and 41 degrees of freedom.

The results of the study indicate that there is a statistically significant difference among the adjusted post-test means group I, group II and group III on range of pain. To determine which of the paired means had a significant difference, the Scheffe's test was used as a post-hoc test and the results are presented in Table-III.

Table III shows that the adjusted post-test means differences of the means without undergo any type of asanas training group (Group I), undergo only the general asanas training group (Group II) and undergo selected therapeutic asanas (Group III) are 3.34, 7.81 and 4.47 respectively, which are lesser than the confidence interval value of 5.98for insignificance at 0.05 level of confidence for 2 and 41 degrees of freedom. It also shows that the adjusted post-test mean differences on range of pain between undergo only the general asanas training group (Group II) are 7.81 respectively and higher than the confidence interval value of 5.98for significance at 0.05 level of confidence for 2 and 42 degrees of freedom.

The study results show statistically significant differences between the adjusted post-test means of the general asanas training group (Group II) had higher significant changes on range of pain to higher than the confidence interval value of 5.98 for significance at 0.05 level of confidence for 2 and 41 degrees of freedom.

The mean values of without undergo any type of asanas training group (Group I), general asanas training group (Group II) and selected therapeutic asanas (Group III)on range of pain are graphically represented in figure-II.

Table 4: Scheffe's test for the difference between the adjusted post-test mean on range of pain

Group I	Group II	Group III	M.D	C.I
33.49	30.15	-	3.34	
33.49	-	25.68	7.81	5.98
-	30.15	25.68	4.47	
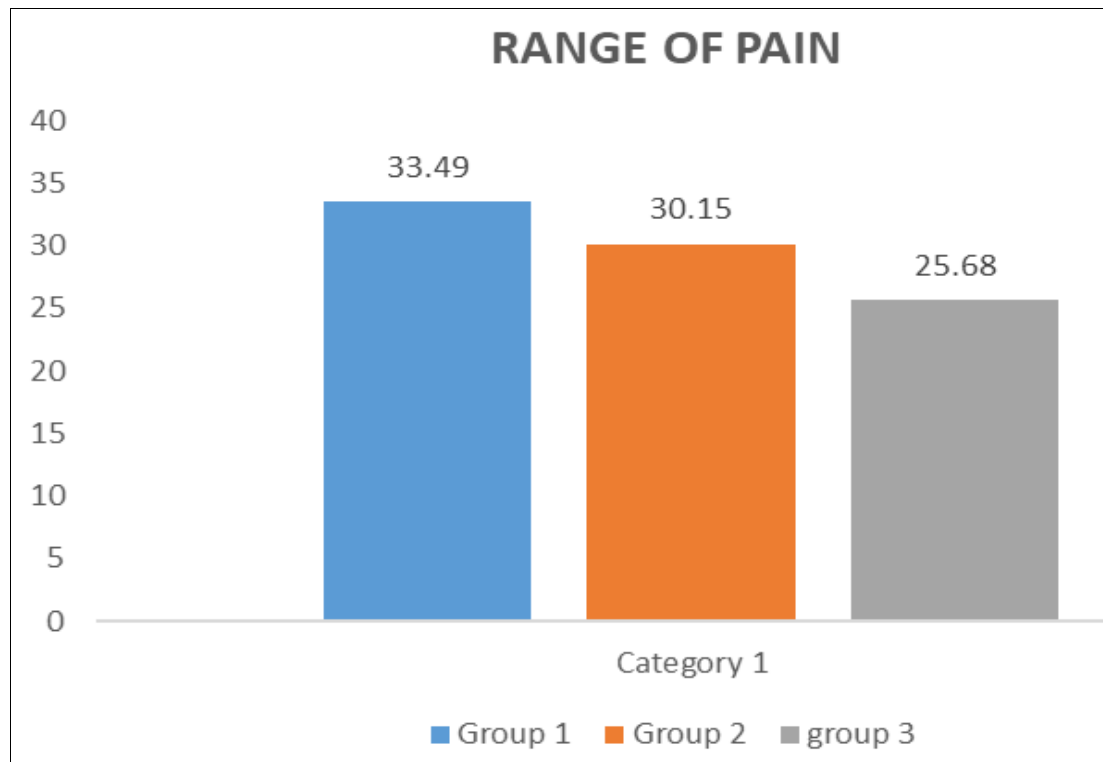
Fig 2: Bar diagram showing the adjusted post-tests mean values on range of pain

Discussion on Findings

In this study, the Analysis of Covariance (ANCOVA) of Flexibility and Range of Pain variables was carried in three different groups with the inclusion of without undergo any asana, only the general asanas and selected therapeutic asanas training programme.

The observed improvements in low back pain on selected variables named as flexibility and range of pain are statistically significant after the post treatment of six weeks without undergo any type of asanas training group, general asanas training group and therapeutic asanas group. Thus the therapeutic asanas training group shows the better improvement than the asanas training group and general asanas training group.

The findings of the study had close relationship with the results of the previous study conducted by (Harold larron and Robert E.Mc Langhlin., 1982) [1], (Rochester, 1982) [2] and (Rechard W. Porter., 1986) [3].

Conclusions

Illustration upon the study's findings and considering its essential limitations, it becomes evident that the integration of without any asana, general asanas and selected therapeutic asanas has a noticeable positive influence on improving the variables. Furthermore, significant progress was observed within the selected variables of the general asanas and selected therapeutic asanas training group, evident after a six-week period of specialized training.

From the statistical analysis, it was found that there was a significant improvement on flexibility and reduce the range of pain due to the impacts of selected yogasanas practices on low back pain for middle aged group women.

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