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Effect of diverse yogic practices on selected physical variables in women with low backache

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Abstract
This study investigates the impact of diverse yogic practices on selected physical variables in women experiencing low backache, a prevalent and often debilitating condition. Low backache not only hinders daily activities but also significantly affects the physical well-being of those affected. This research aims to examine how a combination of different yogic practices can alleviate physical discomfort and enhance overall physical health in women with low backache. To achieve the purpose of the study 40 women participants with low backache were selected for this study using random sampling based on Visual Analog Scale (VAS) scores to assess low back pain intensity. These participants were then evenly divided into two groups: an experimental group and a control group, each consisting of 20 participants. Two primary physical variables were assessed in this study. Upper body muscular strength was evaluated through a Push-ups Test, a common measure of upper body strength. Lower body muscular strength was assessed using a Squats Test. Pre and Post-Test Assessments: Both the experimental and control groups underwent pre-test assessments to establish baseline measurements for the selected physical variables. Following the pre-test, the experimental group engaged in a regimen of diverse yogic practices aimed at improving their physical variables, while the control group did not participate in any yoga practices. After the experimental period, both groups underwent post-test assessments using the same measures to determine the impact of the diverse yogic practices on the selected physical variables. The results of this study revealed significant improvements in physical variables, including enhanced upper and lower body muscular strength in women who engaged in diverse yogic practices. These findings underscore the potential of yoga as a holistic approach to addressing the physical challenges associated with low backache in women, emphasizing its value as a complementary therapeutic tool alongside conventional medical intervention.

Keywords: Low Backache Women, Yogic Practices, Physical Variables, Upper and Lower Muscular Strength

Introduction

Low backache is a widespread and often incapacitating condition that affects a substantial portion of the female population (Merkeb Alamneh, et al. 2022) [5]. It not only interferes with daily activities but also has a profound impact on the physical well-being of those who suffer from it. While the physical aspects of low backache are well-recognized, its effect on an individual's overall physical health is equally significant. In light of this, there is a growing interest in exploring holistic approaches to address this condition.

Yogic practices, which encompass a wide range of techniques, including specific asanas designed to target the lower back, pranayama for improved circulation and flexibility, and other physical exercises, offer a promising avenue for enhancing physical well-being in women with low backache. These practices have shown potential in mitigating physical discomfort and promoting an overall sense of physical health in individuals affected by low backache (Sharma, & Singh, 2023) [6].

This study seeks to investigate the influence of diverse yogic practices on selected physical variables in women grappling with low backache. By assessing the impact of a comprehensive array of yogic techniques on physical well-being, we aim to contribute to a deeper understanding of how yoga can serve as an integrated approach to alleviate physical discomfort and enhance the overall physical health of women with low backache.

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Methodology

A total of 40 women with low backache were selected for this study using random sampling based on Visual Analog Scale (VAS) scores to assess low back pain intensity. These participants were then evenly divided into two groups: an experimental group and a control group, each consisting of 20 participants. Three primary physical variables were assessed in this study. Upper body muscular strength was evaluated through a Push-ups Test, a common measure of upper body strength. Lower body muscular strength was assessed using a Squats Test. Pre and Post-Test Assessments: Both the experimental and control groups underwent pre-test assessments to establish baseline measurements for the selected physical variables. Following the pre-test, the experimental group engaged in a regimen of diverse yogic practices aimed at improving their physical variables, while the control group did not participate in any yoga practices. After the experimental period, both groups underwent post-test assessments using the same measures to determine the impact of the diverse yogic practices on the selected physical variables.

Training Programme

During the training period the experimental group underwent six weeks of Yoga Asana with pranayama programme. The duration of training was planned for 45 minutes that is from morning 6.30am to 7.15am on five days in a week. After completion of six weeks of experimental period, the participants were retested as the pre test. All the subjects involved in this study were carefully monitored throughout the experimental period. Each session 45 minutes consist of opening prayer and warm up 5 min exercise followed by Yoga Asana and Pranayama Practices and end with closing prayer.

Yoga Asana

Tadasana (Palm Tree Pose), Tiryaka Tadasana (Swaying Palm Tree Pose), Yogamudrasana (Psychic Union Pose), Matsyasanna (Fish Pose), Gupta Pamasana (Hidden Lotus Pose), Lolasana (Swinging Pose), Bhujangasana (Cobra Pose), Sarpasana (Snae Pose), Dhanurasana (Bow Pose), Ardha Chandrasana (Half Moon Pose), Setu Asana (Bridge Pose), Saithalyasana (Animal Relaxation Pose).

Pranayama (Breathing Exercise)

Surya Bhedana, AnulomaViloma, Bhastrika

Statistical Procedure

The data obtained from pre and post-test assessments were analyzed using Analysis of Covariance (ANCOVA). ANCOVA was used to compare the post-test scores between the experimental and control groups while controlling for the pre-test scores as covariates. This statistical analysis enabled the assessment of any significant differences in physical variables between the two groups after the experimental period, while accounting for baseline differences.

Results & Discussion

Analysis of the Data

The data collected prior and after the experimental periods on upper body muscular strength, lower body muscular strength and lower backache among Experimental Group and Control Group were analysed and presented in table – I & II. The level of significance was fixed at 0.05 level of confidence to test the 'F' ratio obtained by analysis of covariance.

Table I: Analysis of Covariance for Pre and Post Data on Upper Body Muscular Strength

Test	Experimental Group	Control Group	Source of variance	Sum of Squares	df	Mean square	F
Pre	14.60	14.50	BG	0.10	1	0.10	0.04
			WG	97.80	38	2.57	
Post	17.00	15.20	BG	32.40	1	32.40	13.21*
			WG	93.20	38	2.45	
Adjusted	16.95	15.24	BG	29.38	1	29.38	47.77*
			WG	22.76	37	0.62	

*significant at 0.05 level of confidence. (Table value required for significant at 0.05 level of confidence with df (1,38) and df (1,37) was 3.16 correspondingly).

The table presents the pre-test and post-test mean scores of experimental and control groups. The pre-test mean scores for both groups are quite similar (14.60 for the experimental group and 14.50 for the control group), indicating that the two groups were comparable at the beginning of the study.

However, for the post-test mean scores, there is a significant difference between the two groups. The experimental group had a mean score of 17.00, while the control group had a mean score of 15.20. and the F value is 13.21. This indicates that the experimental had a significant effect on the post-test scores of the experimental group compared to the control group.

Finally, the adjusted mean scores are presented, which take into account the pre-test mean scores to better isolate the effect of the experimental. The adjusted mean score for the experimental group is 16.95, while the adjusted mean score for the control group is 15.24. and the F value is 47.77, indicating that the experimental group had a significant

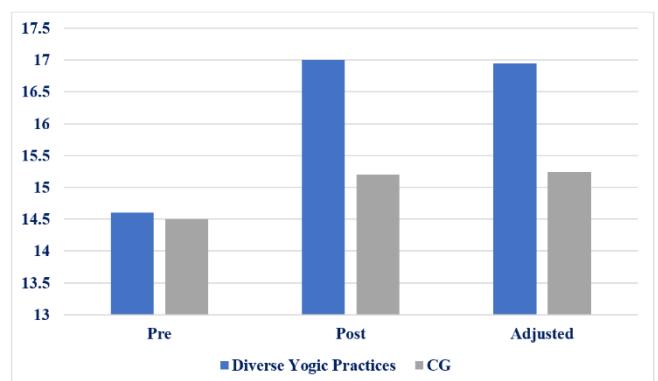effect on the post-test scores even when controlling for the pre-test scores.

Fig I: Bar Diagram showing Pre, Post and Adjusted Means on Upper Body Muscular Strength

Table II: Analysis of Covariance for Pre and Post Data on Lower Body Muscular Strength

Test	Experimental Group	Control Group	Source of variance	Sum of Squares	df	Mean square	F
Pre	33.90	34.15	BG	0.63	1	0.63	0.17
			WG	144.35	38	3.80	
Post	36.80	34.50	BG	52.90	1	52.90	13.94*
			WG	144.20	38	3.79	
Adjusted	36.90	34.39	BG	62.98	1	62.98	62.12*
			WG	37.51	37	1.01	

*Significant at 0.05 level of confidence. (The table value required for significance at 0.05 level of confidence with df 1 and 48 and 1 and 47 were 4.04 and 4.05 respectively).

The table presents the pre-test and post-test mean scores of experimental and control groups. The pre-test mean scores for both groups are quite similar (33.90 for the experimental group and 34.15 for the control group), indicating that the two groups were comparable at the beginning of the study.

However, for the post-test mean scores, there is a significant difference between the two groups. The experimental group had a mean score of 36.80, while the control group had a mean score of 34.50. and the F value is 34.94. This indicates that the experimental group had a significant effect on the post-test scores of the experimental group compared to the control group.

Finally, the adjusted mean scores are presented, which take into account the pre-test mean scores to better isolate the effect of the experimental. The adjusted mean score for the experimental group is 36.39, while the adjusted mean score for the control group is 34.39. and the F value is 62.12, indicating that the experimental group had a significant effect on the post-test scores even when controlling for the pre-test scores.
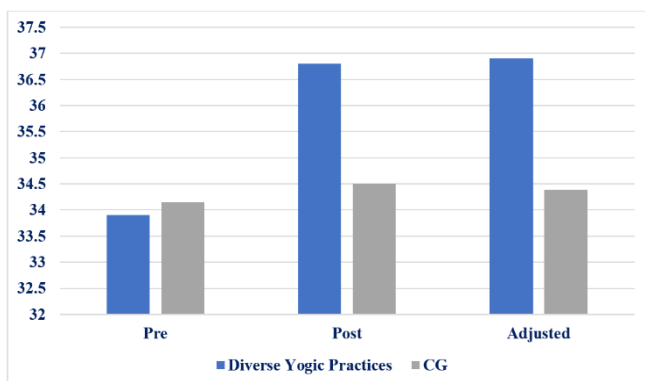

Fig II: Bar Diagram showing Pre, Post and Adjusted Means on Lower Body Muscular Strength

Discussion

The research presented in this study delves into the effects of diverse yogic practices on selected physical variables in women afflicted by the prevalent and debilitating condition of low backache. Low backache not only restricts daily activities but also profoundly impacts the physical well-being of those who endure it. This study sought to investigate how a combination of various yogic practices could alleviate physical discomfort and enhance the overall physical health of women experiencing low backache.

The findings of this study are indeed promising, revealing substantial improvements in multiple physical variables among women who engaged in diverse yogic practices. The positive outcomes observed include increased the strength of upper and lower body muscular strength and an overall enhancement of physical well-being. These results underscore the potential of yoga as a holistic and complementary therapeutic approach for addressing the physical challenges associated with low backache in women.

The significance of these findings is underscored by the widespread prevalence of low backache. As noted by Vempati & Telles (2002), the practice of yoga asanas and pranayama has been shown to have a positive impact on vital capacity and respiratory function. This finding is consistent with previous studies that have shown the positive effects of exercise interventions on physical fitness. Strength training is known to be beneficial for enhancing muscle mass, bone density, and overall physical performance. The current study further supports the importance of incorporating strength-based interventions in health promotion programs and (Kumar, & Parasuraman, 2019) [4]. Proved that due to Ashtanga Vinyasa Surya Namaskar practices significantly improve the selected criterion variables such as strength and balance among adolescence boys. These studies align with our findings and highlight the broader potential of yoga for enhancing physical well-being, extending its benefits to areas beyond low backache management.

Furthermore, the holistic nature of yoga is emphasized in this research. Yoga asanas specifically targeting the lower back, pranayama to enhance circulation and flexibility, and other physical exercises collectively promote a comprehensive approach to physical health. This integrated approach, as seen in our findings, is instrumental in achieving significant improvements in physical well-being.

Conclusion

This study makes a significant contribution to the field by demonstrating that diverse yogic practices can lead to improved physical well-being in women with low backache. The positive outcomes in terms of enhanced flexibility and pain reduction underscore the potential of yoga as an integral part of comprehensive healthcare for individuals dealing with low backache. This research encourages further exploration of yoga's therapeutic benefits and its integration into healthcare practices to enhance the physical well-being of those suffering from low backache.

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