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Yogic Practice Improves Neuromuscular Coordination in Sedentary Middle-Aged Women: An Experimental Study

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Abstract

Background. Kinesthetic perception, static balance, and coupling ability are essential components of motor coordination, particularly in middle-aged women leading sedentary lifestyles. Yogic practice is widely recognized for its benefits in enhancing physical and neuromuscular functions, but its specific impact on these variables remains underexplored.

Objectives. This study aimed to evaluate the effects of an eight-week yogic practice on kinesthetic perception, static balance, and coupling ability among sedentary middle-aged women.

Materials and methods. Sixty sedentary women, aged 30-50 years, were purposively selected from West Bengal, India, and divided into two age groups (30-40 and 41-50 years). Each age group was further assigned to an experimental group (n = 15) and a control group (n = 15). The experimental groups participated in a structured yogic practice program for eight weeks, while the control groups maintained their routine activities. Kinesthetic perception, static balance, and coupling ability were assessed using the kinesthetic obstacle test, stork stand test, and eye-hand coordination test, respectively. Statistical analyses, including ANCOVA, pairwise comparisons, and independent t-tests, were conducted using SPSS, with a significance level of 0.05.

Results. ANCOVA revealed significant improvements in kinesthetic perception ($F = 5.60$, $p < .05$; $F = 4.51$, $p < .05$), static balance ($F = 5.90$, $p < .05$; $F = 4.92$, $p < .05$), and coupling ability ($F = 10.74$, $p < .05$; $F = 7.60$, $p < .05$) for the experimental groups in the 30-40 and 41-50 age ranges, respectively, compared to the control groups. Pairwise comparisons confirmed these marked differences, while independent t-tests showed no substantial variations between age groups in the experimental groups.

Conclusions. The study indicated that an eight-week yogic practice intervention significantly improved kinesthetic perception, static balance, and coupling ability in sedentary middle-aged women, demonstrating its effectiveness in enhancing neuromuscular coordination. These findings support yogic practice as an effective strategy for improving motor functions in non-athletic middle-aged populations.

Keywords: yogic practice, kinesthetic perception, static balance, coupling ability, middle-aged women.

Introduction

In contemporary society, sedentary lifestyles have become a major public health concern, particularly among middle-aged women (Seguin et al., 2014). The transition from an active to a sedentary routine is often accompanied by physiological and motor impairments (Park et al., 2020), which may adversely impact functional movement capabilities and overall well-being. Among these impairments, declines in kinesthetic perception (Ricotta & Latash, 2021), static balance (Peebles et al., 2018), and coupling ability pose significant challenges in daily activities, potentially leading to musculoskeletal discomfort, impaired

postural control, and increased fall risk. Given the crucial role of these motor abilities in sustaining an individual's quality of life, interventions that can counteract these effects warrant systematic investigation.

Kinesthetic perception, defined as the awareness of body position and movement, is essential for efficient motor control and coordination (Sreeji & Rajesh, 2025). Deterioration in kinesthetic perception is often observed in sedentary individuals, contributing to reduced movement efficiency and an increased risk of injury (D'Aurizio et al., 2023). Similarly, static balance, the ability to maintain body stability in a stationary position, is a fundamental component of motor performance and is vital for daily functional activities (Badau et al., 2021; Singh et al., 2024). Impaired balance has been directly linked to falls, postural instability, and mobility limitations, particularly in aging populations (Xing et al., 2023). Additionally, coupling ability—the coordination between different body segments to perform complex movements—is a key determinant of skilled motor execution (Sandhu et al., 2017). Reduced coupling ability may lead to inefficient movement patterns, further exacerbating the decline in physical function.

Physical inactivity exacerbates the decline of these neuromotor abilities (Lippert et al., 2016), making it imperative to explore alternative strategies for enhancing movement perception, stability, and coordination. Recent research has highlighted the potential of mind-body interventions such as yogic practice in promoting neuromuscular function and motor control (Mishra et al., 2012; Kaur & Bhat, 2019). The yogic practice integrates breath control, postural alignment, and mindfulness, fostering heightened bodily awareness and improved motor execution (Daubenmier, 2005; Kaur & Bhat, 2019; Pramanik et al., 2024). Furthermore, the yogic practice may facilitate proprioceptive adaptations (Verma et al., 2023), improving kinesthetic perception (Sasmal, 2018), static balance (Elangovan et al., 2020), and coordinative ability (Srinivasan & Ravi, 2017). Despite the promising implications of yogic practice for neuromotor enhancement (Chan & Immink, 2013), limited research has systematically examined its efficacy in improving these specific motor components among sedentary middle-aged women.

The physiological and neuromuscular benefits of yogic practice have been widely reported, particularly in relation to flexibility (Polsgrove et al., 2016), strength (Shin, 2021), and relaxation (Woodyard, 2011). However, its direct influence on kinesthetic perception, static balance, and coupling ability remains underexplored. Given that sedentary middle-aged women are at an increased risk of motor decline (Ozaki et al., 2022), yogic practice may serve as a viable intervention for mitigating these functional impairments. Understanding the extent to which yogic practice influences these motor attributes is crucial for designing targeted interventions aimed at improving neuromotor control and overall physical function in this population.

Additionally, neurophysiological studies suggest that yogic practice enhances cortical reorganization (Lenhart et al., 2020) and sensorimotor integration (Campbell & Martin, 2017), which are crucial for kinesthetic awareness and motor control (Schmalzl et al., 2015). Furthermore, the activation of deep stabilizing muscles through sustained yogic postures may lead to enhanced postural control and static balance (Kelley et al., 2014; Elangovan et al., 2020). These physiological adaptations provide a robust foundation for hypothesizing that an eight-week yogic intervention can significantly enhance kinesthetic perception, static balance, and coupling ability in sedentary middle-aged women.

The rationale for this study stems from the increasing prevalence of sedentary behaviors among middle-aged women and the associated decline in motor function. While various forms of physical activity have been recommended for maintaining musculoskeletal health (American College of Sports Medicine, 1998), adherence to traditional exercise programs remains a challenge due to time constraints, lack of motivation, and physical limitations (Mahmood et al., 2020; Mahmood et al., 2019). Yogic practice, with its adaptable nature and holistic benefits, presents a sustainable alternative for improving neuromotor function without imposing excessive physical demands. The ability of yogic practices to enhance kinesthetic perception, static balance, and coupling ability has theoretical support, but empirical evidence remains scarce, particularly in sedentary middle-aged populations.

Enhanced kinesthetic perception through yogic practice may stem from its focus on body awareness and proprioceptive feedback (Sasmal, 2018; Schlienger et al., 2023). Similarly, improvements in static balance may be facilitated by the activation of postural control mechanisms and postural stability during yogic practice (Kelley et al., 2014; Lin et al., 2022). Moreover, the sequential execution of complex movements in yogic practices may contribute to better coupling ability, enabling efficient motor coordination and execution of multi-joint movements (Ju et al., 2024; Narahari et al., 2016).

Despite the theoretical underpinnings, there remains a paucity of research investigating the direct effects of yogic practice on these specific neuromotor attributes. Previous studies have primarily focused on flexibility, strength, and overall postural control, with limited attention given to kinesthetic perception and coupling ability. This gap in the literature highlights the need for targeted research to evaluate the role of yogic practice in enhancing these fundamental motor capacities. Additionally, middle-aged women represent a unique demographic that experiences a progressive neuromuscular decline, making them an ideal population for intervention-based research.

This study aims to bridge the gap by examining the effects of an eight-week yogic intervention on kinesthetic perception, static balance, and coupling ability in sedentary middle-aged women (30-50 years). By employing a structured yogic practice program, this research will provide empirical evidence on whether yogic practice can serve as an effective modality for enhancing neuromotor function. The findings may have significant implications for exercise prescriptions, rehabilitation programs, and preventive strategies aimed at mitigating motor decline in sedentary populations.

Additionally, the study will contribute to the growing body of research exploring the role of alternative therapies in motor skill development and functional movement enhancement. With an increasing shift toward holistic health interventions, yogic practice-based programs may provide a feasible, low-cost, and accessible option for individuals who are unable or unwilling to engage in conventional exercise routines. By validating the neuromotor benefits of yogic practice, this research has the potential to influence public

health policies, clinical recommendations, and community-based wellness initiatives aimed at improving motor function in aging and sedentary populations.

Material and Methods

Participants

The study included sixty (n = 60) sedentary middle-aged women, aged 30–50 years, who were purposively selected based on specific inclusion criteria from the West Bengal region of India. The participants were classified into two distinct age groups: 30-40 years, consisting of 30 women, and 41-50 years, consisting of another 30 women. Each of these groups was further divided into subgroups of 15 participants, comprising an experimental group and a control group. In this study, none of the participants smoked, drank alcohol, had any acute or chronic illnesses, or were taking any medications. All participants were sedentary women who voluntarily agreed to join the program and provided written informed consent for participation in the study. The study was approved by the Department of Physical Education and Sport Science, Visva-Bharati University, after receiving clearance from the Department Research Committee and the Board of Studies.

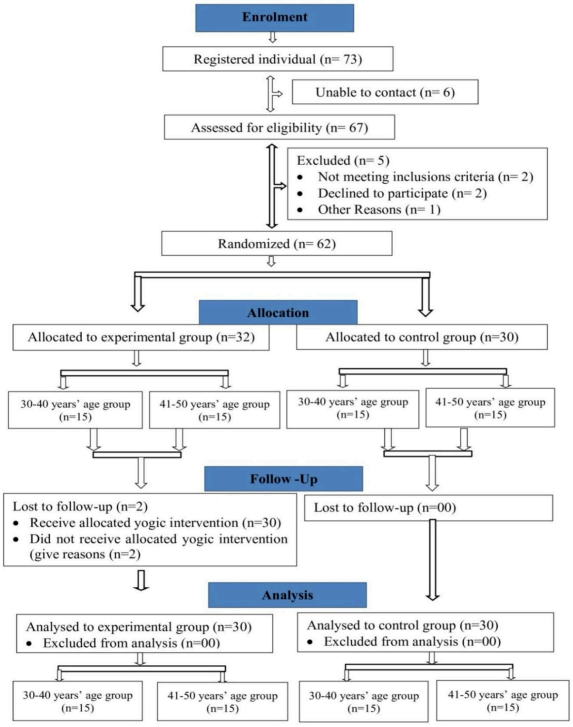

Fig. 1. Participation selection consort flow chart

Variables and Criterion Measures

The variables and criterion measures were applied to record data for the selected variables provided in Table 1.

Table 1. Variables and criterion measures

Variables	Test items	Scores
Kinesthetic Perception	Kinesthetic Obstacle Test	Numbers
Static Balance	Stork Stand Test	Seconds
Coupling Ability	Eye-Hand Coordination Test	Seconds

Study Organization

This research utilized an experimental approach, implementing a two-group pre-test and post-test design. This study utilized an experimental design based on empirical concepts, employing a randomized pre-test and post-test controlled group methodology. The aim was to assess whether an eight-week yogic practice intervention could lead to significant improvements in kinesthetic perception, static balance, and coordination abilities. Probability sampling methods were used to select participants from among middle-aged women.

Experimental Protocol

Data were collected from both the experimental and control groups, which consisted of sedentary women divided into two age groups: 30-40 years and 41-50 years. Each of these age groups was further subdivided into four subgroups of 15 participants each, comprising two experimental groups and two control groups. The experimental groups participated in a yogic practice program that included chanting prayers, performing Suryanamaskar (Sun Salutation), practicing various asanas (postures), and concluding with closing prayers. The asanas included in the training regimen were Vrikshasana, Virabhadrasana-iii, Uttanpadasana, Pawanmuktasana, Naukasana, Bhujangasana, Purnasalabhasana, Ardha Dhanurasana, Vajrasana, and Padmasana. The sessions were held at Visva-Bharati from 7:00 to 8:00 am, Monday to Saturday, under the guidance of certified yoga instructors. The following routine in Table 2 was performed six days a week for eight weeks, with the intensity gradually increasing from the first to the eighth week. The control group maintained their regular daily lifestyle throughout the study. Pre-test data were collected from both groups before the start of the yogic practice program, while post-test data were gathered from all four groups—two experimental and two control—after the eighth week.

Table 2. Yogic practices schedule for six days a week for 8 weeks

Yogasana	1st & 2nd	3rd & 4th	5th & 6th	7th & 8th
Suryanamaskar	120×3Rep		120s×6Rep	
Uttanpadasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Pawanmuktasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Naukhasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Bhujangasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Ardha dhnurasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Vajrasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Purnasaibhasan	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Virabhadrasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Vrikashana	15s×3rep	30s×3rep	45s×3rep	60s×3rep
Padmasana	15s×3rep	30s×3rep	45s×3rep	60s×3rep

Test Procedure

The kinesthetic obstacle Test measures kinesthetic perception by arranging twelve chairs as obstacles in a 40×5 feet area. Participants first practice walking through the course without a blindfold. They then attempt the course blindfolded, earning 10 points for each station cleared without touching an obstacle. The maximum score achievable is 100 points, as there are ten stations in total.

The stork stand test assesses static balance. The participant stands on their dominant foot, placing the opposite foot's ball against the inside of the supporting knee. Hands rest on the waist. On the start signal, the participant lifts their heel, balancing on the ball of the foot without shifting position. A stopwatch records the time from the start until the balance is lost, marked by the heel touching the ground or a foot shift. The score is the duration in seconds that balance is maintained.

The eye-hand coordination test measures eye-hand coordination ability. The subject stands between two boxes 15 feet apart, with five balls in the left box. On "Go," the subject moves a ball from the left to the right box, repeating until all balls are transferred. Timing starts with the first "Go" and stops when the last ball is placed in the right box. After a practice trial, two timed trials are given, and the best time is recorded as the score.

Statistical Analysis

For statistical analysis, the Shapiro-Wilk test assessed the normality of data distribution, and Levene's test verified the equality of variances. Descriptive statistics, including the mean and standard deviation (SD), were used, while inferential analysis involved analysis of covariance (ANCOVA), pairwise comparisons, and independent samples t-tests for between-group comparisons. All analyses were conducted using IBM SPSS software at a significance level of 0.05.

Results

The ANCOVA analysis (Table 4) for pre- and post-test data of sedentary women aged 30-40 and 41-50 years showed significant treatment effects across all measured variables.

Table 3. Descriptive statistics of sedentary women aged 30-40 and 41-50 years

Age Group	Group	n	Test	Kinesthetic Obstacle		Static Balance		Coupling Ability	
				Mean	SD	Mean	SD	Mean	SD
30-40	Experimental	15	Pre-test	40.00	5.67	16.67	2.82	22.89	0.90
			Post-test	49.00	6.87	21.40	3.04	21.84	0.71
	Control	15	Pre-test	40.33	5.81	16.33	2.23	23.04	0.94
			Post-test	45.67	6.78	19.33	2.44	22.44	0.60
41-50	Experimental	15	Pre-test	39.00	6.32	15.73	2.89	24.47	1.53
			Post-test	47.67	8.42	19.53	3.42	22.98	1.26
	Control	15	Pre-test	38.67	6.02	13.93	2.66	24.53	1.14
			Post-test	44.33	7.81	16.53	2.70	23.57	1.24

Table 4. ANCOVA for pre-and post-test data of sedentary women aged 30-40 and 41-50 years

Test	Age Group	Source	df	Sum of Squares	Mean Square	F-value
Kinesthetic Obstacle	30-40	Treatment Group	1	99.720	99.720	5.60*
		Error	27	480.442	17.794	
		Total	28	580.162		
	41-50	Treatment Group	1	65.026	65.026	4.51*
		Error	27	389.245	14.416	
		Total	28	454.271		
Static Balance	30-40	Treatment Group	1	24.697	24.697	5.90*
		Error	27	113.051	4.187	
		Total	28	137.748		
	41-50	Treatment Group	1	9.466	9.466	4.92*
		Error	27	51.985	1.925	
		Total	28	61.451		
Coupling Ability	30-40	Treatment Group	1	1.987	1.987	10.74*
		Error	27	4.997	0.185	
		Total	28	6.985		
	41-50	Treatment Group	1	2.175	2.175	7.60*
		Error	27	7.723	0.286	
		Total	28	9.898		

Table value of F (1,27) = 4.22*. Significant at the .05 level

Table 5. Pairwise comparisons of age groups 30-40 and 41-50 of adjusted means in pre-test and post-test data

Test	Age Group	Group	n	Pre-test	Post-test	Mean Adjusted	Mean Difference	Critical Difference
Kinesthetic Obstacle	30-40	Experimental	15	40.00	49.00	49.16	3.65*	2.62
		Control	15	40.33	45.67	45.51		
	41-50	Experimental	15	39.00	47.67	47.47	2.95*	2.36
		Control	15	38.67	44.33	44.53		
Static Balance	30-40	Experimental	15	16.67	21.40	21.28	1.82*	1.27
		Control	15	16.33	19.33	19.46		
	41-50	Experimental	15	15.73	19.53	18.63	1.18*	0.86
		Control	15	13.93	16.53	17.44		
Coupling Ability	30-40	Experimental	15	22.89	21.84	21.88	0.52*	0.27
		Control	15	23.04	22.44	22.40		
	41-50	Experimental	15	24.47	22.98	23.01	0.53*	0.33
		Control	15	24.53	23.57	23.54		

*. The mean difference is significant at the 0.05 level

Table 6. Independent t-test of pre-test and post-test mean differences between age groups 30-40 and 41-50years

Test	Age Group	Group	Pre-Post Mean Difference	Mean Difference	Std Error of Diff	t	Sig.
Kinesthetic Obstacle	30-40	Experimental	9.00	0.33	0.18	1.85	0.86
	41-50	Experimental	8.67				
Static Balance	30-40	Experimental	4.73	0.93	0.71	1.31	0.20
	41-50	Experimental	3.80				
Coupling Ability	30-40	Experimental	1.05	0.453	0.25	1.83	0.08
	41-50	Experimental	1.49				

For the kinesthetic obstacle test, significant differences were observed in both age groups, with F-values of 5.60 ($p < .05$) for ages 30-40 and 4.51 ($p < .05$) for ages 41-50, indicating the treatment improved kinesthetic perception. In static balance, the treatment led to significant improvements, with F-values of 5.90 ($p < .05$) for ages 30-40 and 4.92 ($p < .05$) for ages 41-50, showing enhanced static balance in both groups. For coupling ability, significant effects were also found, with F-values of 10.74 ($p < .05$) for ages 30-40 and 7.60 ($p < .05$) for ages 41-50. Overall, the intervention significantly improved kinesthetic perception, static balance, and coupling ability in both age groups.

The results of pairwise comparisons (Table 5) showed significant differences in adjusted post-test means between age groups 30-40 and 41-50 for pre-test and post-test data across all measures. For kinesthetic obstacle, both age groups had significantly higher post-test adjusted means in the experimental groups compared to the control groups (30-40: mean difference = 3.65, $p < .05$; 41-50: mean difference = 2.95, $p < .05$). A similar pattern was observed for static balance (30-40: mean difference = 1.82, $p < .05$; 41-50: mean difference = 1.18, $p < .05$), and for coupling ability (30-40: mean difference = 0.52, $p < .05$; 41-50: mean difference = 0.53, $p < .05$), with all mean differences exceeding the critical value These findings indicate that the intervention led to significant improvements across all tested variables for both age groups.

An independent t-test was conducted to compare the experimental group's pre-test and post-test mean differences between the age groups 30-40 and 41-50 across three measures: kinesthetic obstacle, static balance, and coupling ability. No significant differences were found for any of the measures. For the kinesthetic obstacle, the mean difference between the groups was 0.33 ($t = 1.85$, $p = .86$). For static balance, the mean difference was 0.93 ($t = 1.31$, $p = .20$). Lastly, for coupling ability, the mean difference was 0.45 ($t = 1.83$, $p = .08$). These results indicate that both age groups showed similar levels of improvement across all measures.

Discussions

The present study provides compelling evidence that an eight-week yogic intervention significantly enhances kinesthetic perception among sedentary women aged 30–40 years and 41-50 years. This indicates that yogic practices effectively refine proprioceptive acuity and neuromuscular coordination. These findings contribute to the growing body of research supporting the role of yogic practice in improving sensorimotor function in sedentary populations.

Kinesthetic perception is integral to motor control, postural stability, and functional movement. Prior studies have established a strong association between yogic practice and enhanced sensorimotor integration (Rivest-Gadbois & Bou-

drias, 2019). Researchers Singh et al. (2009) reported significant improvements in kinesthetic perception following yogic practice, aligning with the present findings. Additionally, a study highlighted the efficacy of yogic practice in improving body awareness (Gunnersen et al., 2022), and neuromuscular function (Artchoudane et al., 2021), reinforcing the observed benefits in kinesthetic perception. These neurophysiological adaptations have been widely recognized for their role in enhancing proprioception and movement efficiency, particularly in individuals with sedentary lifestyles. Notably, the differential improvements across age groups indicate slightly greater enhancements in kinesthetic perception in the younger cohort, potentially due to higher neuroplasticity (Paraskevopoulos & Herholz, 2013). However, the significant gains observed in the 41–50 age groups underscore the capacity for neurophysiological adaptations to targeted interventions even in the later stages of adulthood. This finding is particularly relevant in the context of age-related declines in proprioceptive function and neuromuscular control, suggesting that yogic practices may serve as an effective intervention to mitigate these declines and promote functional mobility across different age groups. These results have important implications for health promotion and rehabilitation. Given the detrimental effects of prolonged sedentary behavior on kinesthetic perception and motor function, yogic practice emerges as a viable, non-pharmacological approach to counteract these effects. The incorporation of yogic practice-based interventions in routine physical activity regimens could offer substantial benefits in enhancing proprioception, postural stability, and movement efficiency in sedentary populations.

Static balance in sedentary women aged 30-40 and 41-50 years, demonstrated significant improvements in both age groups, as indicated by the ANCOVA findings (Table 4), with F-values of 5.90 ($p < .05$) and 4.92 ($p < .05$), respectively. The findings of this study support yogic practice as an effective intervention for enhancing static balance and postural control in sedentary women. The observed improvements align with prior research (Bajaj et al., 2025), highlighting the role of yogic practice in neuromuscular coordination (Wahyuni et al., 2024), proprioception (Wooten et al., 2018), and core stability (Omkar et al., 2009). The controlled postures, synchronized breathing, and heightened body awareness inherent in yogic practice facilitate sensory integration (Rivest-Gadbois & Boudrias, 2019) and motor control (Kanaujia & Srivastava, 2024), contributing to improved balance and a reduced risk of falls. Yogic practice-based interventions significantly enhance postural stability across different populations, reinforcing their effectiveness in balance training (Jeter et al., 2015; Ikai et al., 2013). Given its accessibility and adaptability, yogic practice presents a practical and non-invasive intervention for balance enhancement, with potential applications in community-based health initiatives aimed at reducing fall-related risks among sedentary populations. Additionally, future research should investigate the long-term retention of balance improvements and incorporate objective biomechanical assessments to provide further insights into the underlying mechanisms.

The coupling ability demonstrated statistically significant improvements across both age groups, respectively. These results align with existing literature Umesh and Suresh (2018), suggesting that structured yogic practices can effectively enhance neuromuscular coordination (Wahyuni et al., 2024), and motor control (Kanaujia & Srivastava, 2024) in sedentary populations. Coupling ability, which refers to coordinating and integrating movement patterns efficiently, is critical for overall motor performance and daily functional activities. The observed improvements may be attributed to the dynamic nature of yogic practices, which contribute to enhanced proprioceptive awareness (Cherup et al., 2021) and sensor motor integration (Campbell & Martin, 2017). Prior research has suggested that yogic practice likely facilitated the smooth functioning of the central nervous system, enhancing muscle tone and neuromuscular coordination, thereby improving coupling ability (Umesh & Suresh, 2018). The significant treatment effects observed in the present study corroborate these findings, reinforcing the role of yogic practice in augmenting coordinative efficiency. Age-related differences in motor coordination have been widely documented, with middle-aged individuals often exhibiting a decline in neuromuscular adaptability compared to younger counterparts (Wu et al., 2016). Interestingly, our study found that both age cohorts experienced significant improvements in coupling ability, suggesting that yogic interventions can counteract the deleterious effects of sedentary behavior irrespective of age. However, the relatively lower F-value for the 41-50 age group may indicate a slightly reduced responsiveness to the intervention, possibly due to age-associated declines in neuroplastic potential (Ghasemian-Shirvan et al., 2020), and musculoskeletal flexibility (Nolan et al., 2010).

The implications of these findings are noteworthy for public health and physical education, particularly in the context of designing intervention programs aimed at improving bio-motor fitness among sedentary individuals. Given the holistic nature of yogic practices, their integration into fitness regimens may serve as a viable strategy for enhancing coordination and overall physical well-being without the need for high-impact or strenuous physical activity. The observed benefits underscore the necessity of integrating yogic practice-based interventions into public health initiatives and wellness programs aimed at mitigating the adverse effects of a sedentary lifestyle.

Conclusions

An eight-week yogic intervention significantly enhanced kinesthetic perception, static balance, and coupling ability in sedentary women aged 30–50, highlighting its role in improving neuromuscular coordination. These results suggest that yogic practice is a viable approach for enhancing motor functions in non-athletic middle-aged individuals.

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Conflicts of Interest

The authors declare no conflicts of interest.

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Йогічна практика покращує нервово-м'язову координацію у жінок середнього віку, які ведуть малорухливий спосіб життя: Експериментальне дослідження

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Авторський вклад: A – дизайн дослідження; B – збір даних; C – статаналіз; D – підготовка рукопису; E – збір коштів

Реферат. Стаття: 8 с., 6 табл., 1 рис., 52 джерела.

Історія питання. Кінестетичне сприйняття, статична рівновага та здатність до узгодженості рухових дій є невід'ємними складовими координації рухів, зокрема у жінок середнього віку, які ведуть малорухливий спосіб життя. Йогічна практика є широко визнаною методикою, що є ефективною у покращенні фізичних та нервово-м'язових функцій, проте її конкретний вплив на вищезазначені показники залишається недостатньо дослідженим.

Мета дослідження. Метою цього дослідження було оцінити вплив восьмитижневої практики йоги на кінестетичне сприйняття, статичну рівновагу та здатність до узгодженості рухових дій серед жінок середнього віку, які ведуть малорухливий спосіб життя.

Матеріали та методи. Шістдесят жінок, які вели малорухливий спосіб життя, віком від 30 до 50 років, було цілеспрямовано відібрано зі штату Західна Бенгалія, Індія, та розділено на дві вікові групи (30–40 та 41–50 років). Кожна вікова група була додатково розподілена на експериментальну групу (n = 15) та контрольну групу (n = 15). Експериментальні групи брали участь у структурованій програмі з йогічної практики протягом восьми тижнів, тоді як контрольні групи продовжували свою звичайну активність. Кінестетичне сприйняття, статична рівновага та здатність до узгодженості рухових дій оцінювалися за допомогою кінестетичного тесту на перешкоди, тесту на рівновагу «Лелека» та тесту на координацію рук і очей відповідно. Статистичні аналізи, включаючи коваріаційний аналіз, парні порівняння та t-критерії для незалежних вибірок, було проведено за допомогою програмного забезпечення SPSS із рівнем значущості 0.05.

Результати. Коваріаційний аналіз виявив значне поліпшення показників у кінестетичному сприйнятті ($F = 5.60$, $p < 0.05$; $F = 4.51$, $p < 0.05$), статичній рівновазі ($F = 5.90$, $p < 0.05$; $F = 4.92$, $p < 0.05$) та здатності до узгодженості рухових дій ($F = 10.74$, $p < 0.05$; $F = 7.60$, $p < 0.05$) для експериментальних груп у вікових діапазонах 30-40 та 41-50 років відповідно, порівнюючи з контрольними групами. Парні порівняння підтвердили ці суттєві відмінності, тоді як t-критерії для незалежних вибірок не показали істотних варіацій між віковими групами в експериментальних групах.

Висновки. Дослідження показало, що восьмитижнева практика йоги сприяла значному поліпшенню кінестетичного сприйняття, статичної рівноваги та здатності до узгодженості рухових дій у жінок середнього віку, які ведуть малорухливий спосіб життя, продемонструвавши свою ефективність у підвищенні нервово-м'язової координації. Отримані результати підтверджують, що йогічна практика є ефективною стратегією щодо покращення рухових функцій у групах дорослого населення, які не займаються спортом.

Ключові слова: йогічна практика, кінестетичне сприйняття, статична рівновага, здатність до узгодженості рухових дій, жінки середнього віку.

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