



## **Yoga As A Holistic Approach For Improving Core Strength, Shoulder Stability, And Muscular Conditioning**

**Dr. Jaibir Singh**

Assistant Professor, SRM College of Education, Hisar, Haryana

Mail: jaibirsingh4806@gmail.com

**Dr. Rohtash**

P.T.I. Govt. Middle School Dhurali, Distt. Kurukshetra, Haryana

Mail: rohtashwami33@gmail.com

### **ABSTRACT**

Yoga is a holistic approach for enhancing the core strength, shoulder stability, muscular conditioning and overall physical fitness among healthy adults was the subject of the present study. A quantitative experimental research design with pre and post-test approach was used with 80 participants in the age group 18-35 years were involved in the 8 weeks structured yoga program. Standardized fitness tests were used to evaluate core strength, shoulder stability, muscular conditioning, flexibility, balance and muscular endurance. Results showed marked improvements in all variables measured after the intervention, and statistically significant increases in core strength, shoulder stability, muscular conditioning, flexibility, balance, and muscular endurance ( $p < 0.001$ ). The outcomes showed that on-going practice of yoga was effective in improving various aspects of physical fitness by incorporating integrated physical postures, breathing exercises and relaxation exercises. Based on the results of the study, the authors recommended that yoga can be used as a holistic and effective intervention for musculoskeletal fitness, functional performance, general physical well-being in healthy adults. **Keywords:** Yoga, Core Strength, Shoulder Stability, Muscular Conditioning, Physical Fitness, Muscular Endurance, Flexibility, Balance.

### **1. INTRODUCTION**

Yoga is an ancient practice that originated in India, and it is known to benefit the body, mind, and emotions. Yoga is a comprehensive approach to exercise that combines asanas (postures), breathing exercises (pranayama), and mindfulness (meditation) to improve overall health. Yoga has become a hot topic in fitness, rehabilitation and sports science over the past few years because of its benefits in enhancing strength, flexibility, balance and body awareness. Yoga is not like regular exercise programs where each muscle group is targeted separately, it's more about the harmonious interaction of the entire body.

Core strength is essential for good physical fitness and is vital to posture, balance and efficient movement. The core muscles, such as those of the abdomen, back and pelvis, serve to stabilize the spine and to help with a number of functional activities. There are numerous yoga poses that involve prolonged engagement of these muscles that will build core endurance and strength. Crunches and strong core strength lead to better performance in sports, prevent injury and enable functional independence in daily activities.

Stability at the shoulder is also essential for upper body function and to prevent musculoskeletal injuries. The shoulder joint is a very mobile joint that is largely dependent on shoulder muscles for stability. Plank, Down Dog and Side Plank are a few yoga poses that activate the muscles around the shoulder complex and help to stabilize the joints. Yoga can help develop these stabilizing muscles, align your joints and control your movement, improving overall upper-body function.

Muscular conditioning is the systematic development of muscular strength, endurance and functional fitness. Yoga is different from most other forms of muscular conditioning because it incorporates static holds, controlled movement exercises and body weight resistance exercises. These factors help enhance muscle activation, endurance and coordination while reducing overloading the joints. Hence, yoga may be seen as a total and holistic therapy for strengthening the core, stabilizing the shoulder girdle and conditioning the muscles which are essential for the overall fitness and well-being of the individual.

### **1.1. Research Objectives**

The research objectives of the study are:

- To assess the impact of a yoga program on core strength, shoulder stability and muscular conditioning of participants.
- To assess the effectiveness of yoga as an all-inclusive solution to improve overall physical fitness by improving core muscle strength, shoulder joint stability and muscular endurance.

## **2. REVIEW OF LITERATURE**

**Mendhe (2024)** Studied the effects of yoga on fitness and flexibility. According to the author, regular yoga practice was seen to have a significant effect on the different components of physical fitness such as muscular strength, endurance, balance and flexibility. The study emphasised that Yoga was an effective holistic exercise system and was found to be helpful both physically and mentally. In addition, the results indicated that regular practice of yoga improved joint mobility and flexibility in the entire body and thus is a good method to maintain health and fitness.

**Petrič et al., (2024)** examined the effects of Hatha yoga combined to segmental stabilization exercise model on endurance of trunk muscles among healthy adults. The researchers concluded that participants in the integrated yoga program showed greater changes in muscle endurance of the trunk muscles than were observed at baseline. The study found the combination of hatha yoga and stabilization exercises led to a significant strengthening of core muscles and improved postural control. These results highlighted the promise of the yoga-based interventions to encourage musculoskeletal fitness and functional stability.

**Özalp, Yılmaz and Çalık (2026)** investigated the impact of stabilization and yoga training on the neuromuscular performance of sedentary women. Both training methods were shown to enhance the neuromuscular functions, and the yoga training resulted in significant improvements in balance, coordination and muscle activation pattern. The researchers found that the participants improved significantly on the physical performance measures after the intervention period. The results indicated that yoga proved to be an effective approach to

enhance neuromuscular performance and physical fitness among sedentary women, thus, it could be incorporated into exercise programs that promote health and functional fitness.

**Roley (2019)** examined the extent to which young individuals' physical strength was affected by Hatha yoga. They concluded that Hatha yoga practice was found to be a significant improvement in the improvement of muscular strength of different muscle groups. The researcher said yoga poses that involve prolonged muscle tension led to greater gains in endurance and strength. The results indicated that in young adults, Hatha yoga could be an effective form of physical activity to enhance their general muscular fitness.

**Trivedi (2021)** studied the electromyographical analysis of trunk muscle activity in various yoga posture positions. The study found that some postures in yoga activated core muscles to different degrees, which means that they are effective in strengthening them. The researcher noted the high involvement of abdominal, lumbar and stabilizing muscles while performing certain asanas. The results showed that yoga postures facilitated activation of core muscles and could be employed as a practical method for enhancing trunk stability and functioning strength.

**Stephen et al., (2025)** investigated the effects of real-time audio-visual feedback, yoga, and pressure biofeedback stabilizer training on core strengthening in a randomized controlled trial. They determined that all three interventions increased core muscle strength and stability, but there were significant differences in how much each group increased their core strength. The yoga intervention was effective and resulted in greater improvements in core strength and postural control, which makes it a safe and easily accessible form of training. It concluded that yoga was a valuable intervention to improve core muscle performance and could be used in a successful way with rehabilitation and fitness programs.

### **3. RESEARCH METHODOLOGY**

The eight-week structured yoga program's impact on the core strength, shoulder stability, muscular conditioning, and general physical fitness of eighty healthy people (ages 18 to 35) was evaluated using a quantitative experimental research approach. Pre and post data were gathered using standardised fitness assessment instruments, and the significance of improvements was assessed using descriptive statistics and a paired sample t-test. All the ethical guidelines were considered during the study, and participants gave their consent and confidentiality of information was maintained.

#### **3.1. Research Design**

The current study used a quantitative experimental research methodology to examine the effects of a structured yoga program on muscle conditioning, shoulder stability, and core strength. The pre-test and post-test design technique was used to evaluate the impact of the yoga intervention on the participants' physical fitness parameters. By comparing the pre and post measurements made throughout the trial, this methodology enabled the researcher to examine the impact of yoga practice.

#### **3.2. Participants**

The study involved 80 healthy adults (18-35 years). The subjects were purposively sampled from local fitness centers, educational and community organizations. Individuals with a history of serious musculoskeletal injuries, recent surgery, or a medical condition that would restrict

physical activity were not allowed to participate. The participants agreed to participate and gave their informed consent prior to the start of the study.

### **3.3. Yoga Intervention Program**

The subjects received a structured 8 weeks of yoga training. Five days a week, yoga sessions were carried out for about 60 minutes each. The program included warm-up exercises, yoga asanas of core strengthening and shoulder stabilization, breathing exercises (pranayama) and relaxation exercises. In the major postures, the Plank Pose (Phalakasana), Side Plank (Vasisthasana), Boat Pose (Navasana), Downward-Facing Dog (Adho Mukha Svanasana) and Cobra Pose (Bhujangasana) are covered, as well as the Warrior Poses (Virabhadrasana series). The intensity and length of time for the postures was slowly increased during the intervention period.

### **3.4. Variables of the Study**

The independent variable of the study was the structured yoga training program and the dependent variables were the core strength, shoulder stability, muscular conditioning, and general physical fitness. These variables were assessed for the effectiveness of yoga intervention.

#### Independent Variable

- Structured Yoga Training Program

#### Dependent Variables

- Core Strength
- Shoulder Stability
- Muscular Conditioning
- Overall Physical Fitness

### **3.5. Data Collection Tools**

Standardised fitness assessment tools were used to determine the effect of the yoga intervention. Core strength was assessed using Plank Hold Test and shoulder stability was assessed using the Closed Kinetic Chain Upper Extremity Stability Test (CKCUEST). Muscular conditioning was determined by Push-Up Test and Sit-Up Test, while overall physical fitness was measured by some of the flexibility, balance and muscular endurance tests. Before the beginning of the eight-week yoga program, baseline (pre-test) measures were taken and after the intervention to see any changes in the physical fitness of the participants, post-test measures were recorded.

### **3.6. Procedure**

All participants had their baseline data of core strength, shoulder stability and muscle conditioning measured first. After the pre-test, participants participated in the yoga training programme with a trained yoga teacher. Attendance and compliance of the training schedule was checked during the intervention period. The same assessment methodologies and tools were used during the post-test phase as in the pre-test phase after completion of the eight weeks.

### **3.7. Statistical Analysis**

A statistical analysis was performed on the collected data. Descriptive statistics like the mean and standard deviation were used to summarise the data. A paired-sample t-test was used to

determine whether the yoga intervention was statistically significant in connection to the pre-test and post-test scores. The 5% significance threshold was used for all statistical analyses.

### 3.8. Ethical Considerations

The study was conducted in an ethical way, following rules and ethical guidelines for human participation in studies. The subjects agreed to participate in the study after being informed of its objectives and methods. Personal information about research participants was kept private, and they could leave the study at any moment without incurring any fees.

## 4. RESULTS AND DISCUSSION

In this section, the results of this study on the effectiveness of an eight-week structured yoga program for healthy adults improving core strength, shoulder stability, muscular conditioning, and overall physical fitness are presented. Data collected was processed and analyzed descriptively and using paired sample t-test and presented in tabular and graphical form so as to have a wholesome understanding of the impact of yoga intervention on the selected fitness parameters.

The demographic data of the participants used in this study is shown in Table 1. Demographic profile was classified by gender and age group for general information about the study sample. The total number of healthy adults included in the research were classified according to the selected demographic variables as 80.

**Table 1:** Demographic Characteristics of Participants (N = 80)

Variable	Category	Frequency	Percentage (%)
Gender	Male	42	52.5
	Female	38	47.5
Age Group	18–24 Years	32	40.0
	25–30 Years	29	36.3
	31–35 Years	19	23.7
Total		80	100.0

The results showed that there were 42 male participants (52.5%) and 38 female participants (47.5%) in the study sample. According to age, the age group 18-24 years (40.0%) was the largest group followed by the age group 25-30 years (36.3%) and 31-35 years (23.7%). Results show that the sample was fairly balanced in gender so as well as the selected age ranges.

Data from Table 2 demonstrate the core strength score differences between Pre and Post for the yoga intervention. The Plank Hold Test was used to assess core strength, and the yoga program's efficacy was assessed using mean score, standard deviation, mean difference, t value, and p value both before and after the test evaluation.

**Table 2:** Comparison of Core Strength Before and After Yoga Intervention

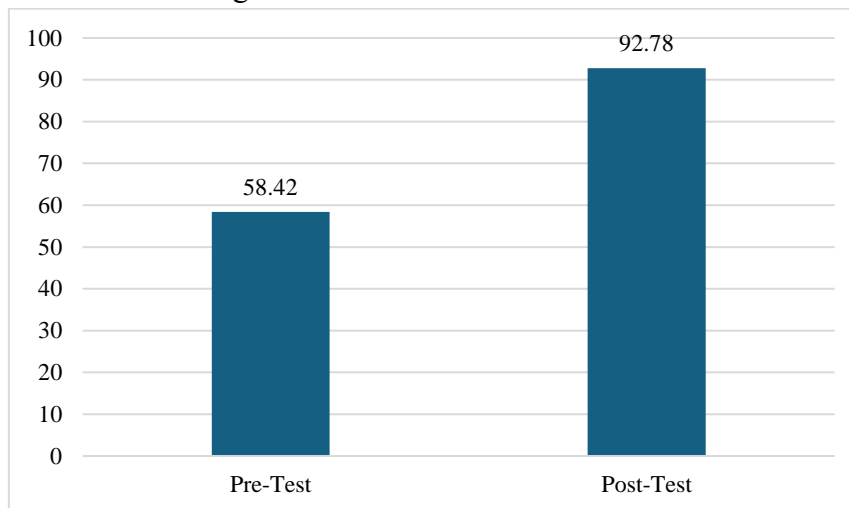
Assessment	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	t- value	p-value

Plank Hold Test (seconds)	58.42 ± 15.26	92.78 ± 18.35	34.36	14.87	<0.001*
------------------------------	------------------	------------------	-------	-------	---------

\*Significant at  $p < 0.05$

The findings indicate that there was a substantial increase in core strength after the yoga intervention. The mean pre- and post-test plank hold times were  $58.42 \pm 15.26$  and  $92.78 \pm 18.35$  seconds, respectively, with a mean difference of 34.36 seconds. The difference between the two groups was highly significant ( $p < 0.001$ ) according to paired-sample t-test, suggesting that the structured yoga program has a positive effect in increasing core muscular strength and endurance in the participants.

Figure 1 displays the participants' mean core strength scores before and after the test. The picture shows a visual comparison of the Plank Hold Test pre-test and post-test results to see how yoga influences core strength.



**Figure 1:** Pre-Test and Post-Test Core Strength Scores

The figure shows the core strength, which improved significantly after the yoga intervention. After the post test, the scores were found to be significantly better with mean score of 58.42 seconds pre-test and 92.78 seconds post-test, thus demonstrating increase in the core muscular endurance and strength. This improvement gives further evidence that the structured yoga programme positively affects development of core stability and the physical fitness of the participants.

Table 3 compares the ratings of shoulder stability before and after the 8-week yoga program. The Closed Kinetic Chain Upper Extremity Stability Test (CKCUEST) was used to assess shoulder stability. The table shows the effectiveness of the yoga program on shoulder stability by computing pre-test mean, post-test mean, standard deviation, mean difference, t-value and p value.

**Table 3:** Comparison of Shoulder Stability Before and After Yoga Intervention

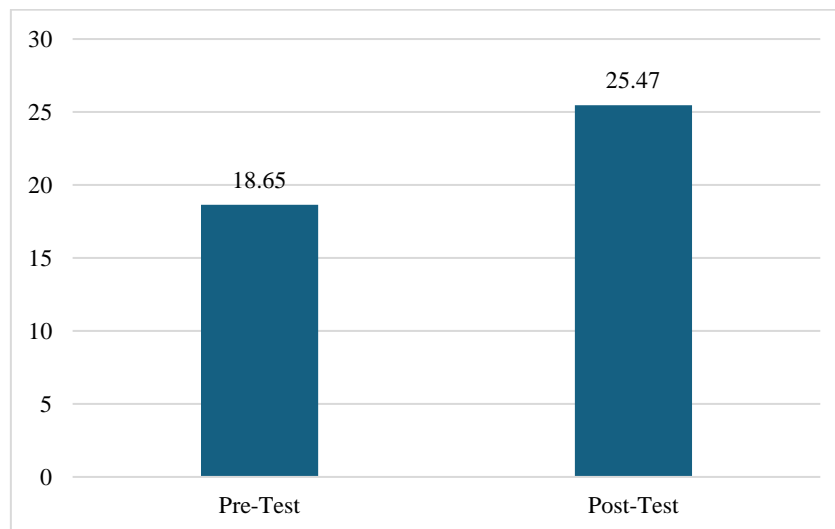
Assessment	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	t- value	p-value
	58.42 ± 15.26	92.78 ± 18.35	34.36	14.87	<0.001*

CKCUEST Score	18.65 ± 3.84	25.47 ± 4.12	6.82	11.94	<0.001*
---------------	--------------	--------------	------	-------	---------

\*Significant at  $p < 0.05$

The findings suggest that there was a very strong increase in shoulder stability after yoga. The mean difference in the post-test and pre-test scores for the mean CKCUEST was 6.82, and the mean CKCUEST scores were  $18.65 \pm 3.84$  in the pre-test and  $25.47 \pm 4.12$  in the post-test. The mean of shoulder joint stability and control of the upper-body increased significantly ( $t = 11.94$ ,  $p < 0.001$ ) after performing the structured yoga program, which showed the effectiveness of the yoga program.

Figure 2 shows that mean shoulder stability score improved after 8 weeks of yoga intervention when compared to pre-intervention scores. The figure shows a visual comparison of pre-test and post-test scores received from the CKCUEST to identify the changes in shoulder stability after the intervention.



**Figure 2:** Improvement in Shoulder Stability

The figure shows a significant improvement in shoulder stability post yoga intervention. The mean score was higher at the post-test (25.47) than at the pre-test (18.65), suggesting that the shoulder joint was more stable and functional control was greater in the upper body. This is an improvement, indicative of the beneficial effects of regular attendance of the structured yoga program on strengthening stabilizing shoulder muscles.

Table 4 shows the comparison of the muscles condition scores before and after 8 weeks yoga intervention. A Push-Up Test and a Sit-Up Test were used to evaluate muscular conditioning. Pre-test and post-test mean scores, standard deviations, mean difference, t-Values and p-values are included in the table to assess the effectiveness of the yoga program to improve muscular endurance and conditioning.

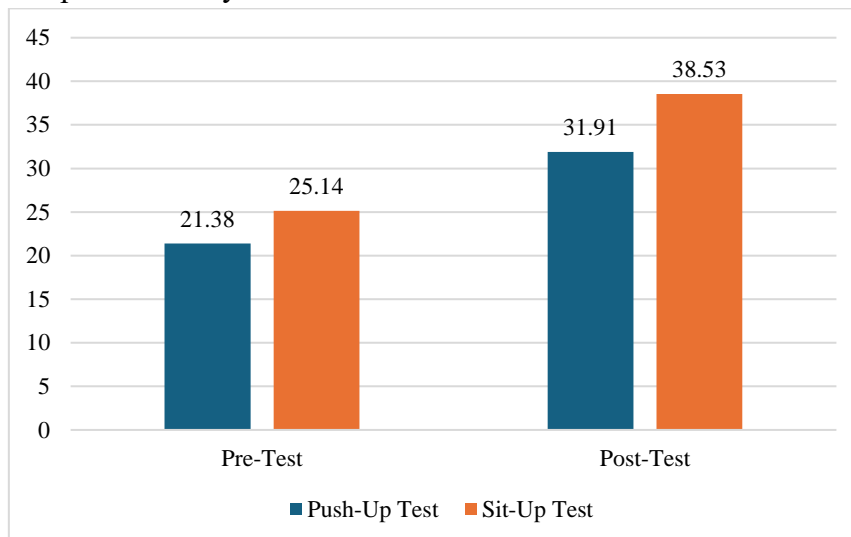
**Table 4:** Comparison of Muscular Conditioning Before and After Yoga Intervention

Assessment	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	t-value	p-value
Push-Up Test (Repetitions)	21.38 ± 5.62	31.91 ± 6.48	10.53	12.65	<0.001*
Sit-Up Test (Repetitions)	25.14 ± 6.07	38.53 ± 7.21	13.39	13.82	<0.001*

\*Significant at  $p < 0.05$

The results showed that yoga intervention had a significant effect on improving the conditioning of muscles. The mean number of repetitions in the pre-test ( $21.38 \pm 5.62$ ) was significantly lower than the mean number of repetitions in the post-test ( $31.91 \pm 6.48$ ) (Mean difference = 10.53). Likewise, there was an increase in the mean Sit-Up Test score with  $25.14 \pm 6.07$  repetitions compared to  $38.53 \pm 7.21$  repetitions with a mean difference of 13.39. Paired-sample t-test showed very significant differences in both Push-Up Test ( $t = 12.65, p < 0.001$ ) and Sit-Up Test ( $t = 13.82, p < 0.001$ ). These results show that the participants' muscle endurance and overall fitness was improved as a result of the structured yoga program.

Figure 3 shows the scores for the muscular conditioning before and after the 8 week yoga intervention. The figure shows the mean scores of Push-Up Test and Sit-Up Test for the pre-test and post-test evaluation, showing the changes in muscular endurance and conditioning among the participants visually.



**Figure 3:** Comparison of Muscular Conditioning Scores

The figure shows that there was an appreciable improvement in the condition of the muscles after yoga intervention. The mean Push Up Test score was higher from the pre-test (21.38) to the post-test (31.91), and the mean Sit Up Test score was higher from the pre-test (25.14) to the post-test (38.53). The post-test scores for both assessments were higher than the pre-test scores, suggesting that the structured yoga program played a significant role in improving muscular endurance, strength, and physical conditioning of the participants.

Table 5 shows the comparison of overall physical fitness components measured before and after 8 weeks of yoga intervention. Flexibility, balance and muscular endurance were considered as important measurement of physical fitness for the assessment. Pre- and post-test mean scores and standard deviations, t-values, and p-values are presented in the table, which is used to assess whether the yoga program was effective in increasing the participants' general level of fitness.

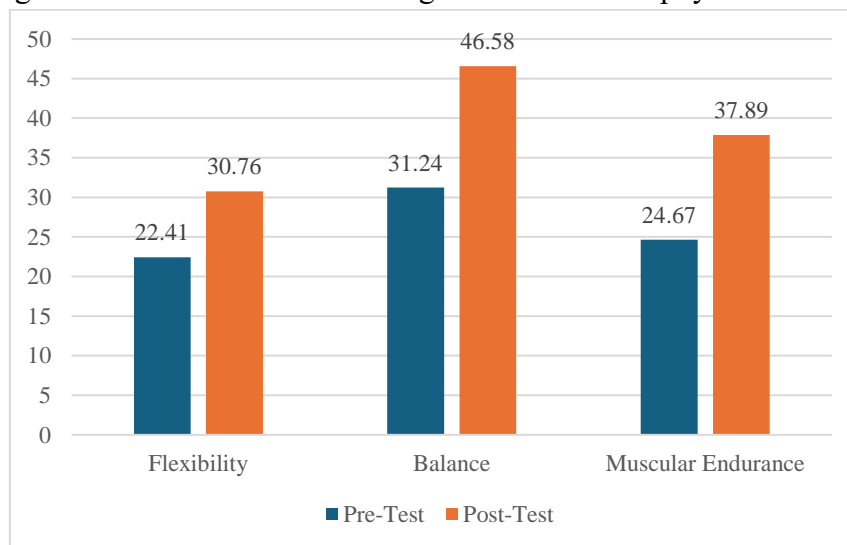
**Table 5:** Overall Physical Fitness Assessment Before and After Yoga Intervention

<b>Fitness Component</b>	<b>Pre-Test Mean ± SD</b>	<b>Post-Test Mean ± SD</b>	<b>t- value</b>	<b>p-value</b>
Flexibility (cm)	22.41 ± 5.18	30.76 ± 5.83	10.96	<0.001*
Balance (seconds)	31.24 ± 8.35	46.58 ± 9.17	12.14	<0.001*
Muscular Endurance (score)	24.67 ± 6.22	37.89 ± 7.03	13.26	<0.001*

\*Significant at  $p < 0.05$

The findings indicate that after the yoga intervention, there was a marked improvement in all measures of physical fitness assessed. The mean flexibility score increased from  $22.41 \pm 5.18$  cm to  $30.76 \pm 5.83$  cm, while the mean balance score improved from  $31.24 \pm 8.35$  seconds to  $46.58 \pm 9.17$  seconds. Similarly, the mean muscular endurance score increased from  $24.67 \pm 6.22$  to  $37.89 \pm 7.03$ . The paired-sample t-test indicated highly significant differences for flexibility ( $t = 10.96, p < 0.001$ ), balance ( $t = 12.14, p < 0.001$ ), and muscular endurance ( $t = 13.26, p < 0.001$ ). The results indicated that the structured yoga programme was effective in improving the overall fitness of the participants.

The mean scores for flexibility, balance and muscular endurance components of the overall physical fitness in pre-test and post-test for the study population are shown in figure 4. The figure illustrates the visual comparison of the fitness levels of the participants before and after the 8-week yoga intervention and shows changes in the selected physical fitness parameters.



**Figure 4:** Overall Physical Fitness Improvements

The figure shows significant increases in all the domains of physical fitness parameters after yoga intervention. Flexibility improved from 22.41 to 30.76, balance improved from 31.24 to 46.58 and muscular endurance improved from 24.67 to 37.89. The post-tests scores for all components show that the structured yoga program was effective for improving physical fitness, including flexibility, balance and muscular endurance among the participants.

#### **4.1. Discussion of Findings**

The results of the study showed that the eight-week yoga program proved to be effective in enhancing core strength, shoulder stability and muscle conditioning among the subjects. Significant improvement in Plank Hold Test scores showed an increase in core muscular

endurance and stability; the increase in the CKCUEST scores showed improved control of the shoulder joint and stabilization of the upper body. Likewise, there were also notable improvements in performance related to Push-Up and Sit-Up Test, indicating that yoga practice was helpful in improving muscle endurance and conditioning. The prolonged muscle engagement, specific movements and body position in yoga asanas provide strength development and neuromuscular coordination which may be responsible for these improvements.

The study also found large improvements in the general fitness of the participants, especially in flexibility, balance, and muscular endurance. The steady increase in fitness in all fitness components measured reinforces the idea of yoga as a whole fitness system that provides multiple fitness components at the same time. The use of physical postures, breathing exercises and relaxation activities were likely to be contributing factors to these positive benefits, enhancing body awareness, movement efficiency and functional fitness. Thus, the outcomes validate the research goals and validate the effectiveness of yoga as an intervention for improving core strength, shoulder stability, conditioning of the muscles and overall physical fitness among healthy adults.

## **5. CONCLUSION**

The present study found that the eight-week, structured yoga program was significantly effective in enhancing core strength, shoulder stability, muscular conditioning and general physical fitness among healthy adult subjects. After the intervention, there were significant improvements in core muscular endurance, shoulder joint stability, flexibility, balance and muscular endurance. The results showed that the multi-component nature of yoga (postures, breathing exercises, relaxation) had a holistic effect on improving functional fitness and musculoskeletal health. Thus, yoga can be recommended as a safe, accessible and comprehensive exercise intervention for adults to benefit their physical health and fitness performance.

## **REFERENCES**

1. Chopp-Hurley, J. N., Prophet, C., Thistle, B., Pollice, J., & Maly, M. R. (2018). Scapular muscle activity during static yoga postures. *Journal of Orthopaedic & Sports Physical Therapy*, 48(6), 504-509.
2. Coccozza, S. (2019). *Core Conditioning for Horses: Yoga-Inspired Warm-Up Techniques*. Trafalgar Square Books.
3. Farhi, D., & Stuart, L. (2024). *Pathways to a Centered Body: Gentle Yoga Therapy for Core Stability, Healing Back Pain, and Moving with Ease*. Embodied Wisdom Publishing.
4. Gergüz, Ç., & Aras Bayram, G. (2023). Effects of yoga training applied with telerehabilitation on core stabilization and physical fitness in junior tennis players: a randomized controlled trial. *Complementary Medicine Research*, 30(5), 431-439.
5. Gunjal, N. (2025). Ancient Indian yoga inspiring modern physical therapy: The synergy between yoga poses and physiotherapy. *Essays on the Indian Knowledge System*, 83.



6. Harrington, R. N. (2026). Effect of Yoga Style on Improvement in Flexibility, Mobility, and Functional Movement in Healthy Adults. *International Journal of Health, Wellness & Society*, 16(1), 49.
7. Işıklar, Ç. (2023). Integration of yoga into exercise and its relationship with core stabilization. *TOGÜ Sağlık Bilimleri Dergisi*, 3(3), 369-377.
8. Kaur, M. S., & Ahluwalia, P. S. (2025). Biomechanical Analysis of Yoga Asanas: Injury Prevention and Optimal Alignment. *Sanatanodaya*, 341-357.
9. Kumar, N., Kalra, S., Pawaria, S., Saher, T., Kumari, N., & Singh, D. (2025). Effect of progressive postural control exercise and yoga on pain, disability and core muscle endurance in patients with chronic low back pain. *Bulletin of Faculty of Physical Therapy*, 30(1), 68.
10. Mendhe, L. S. P. (2024). *Yoga for fitness and flexibility*. Addition Publishing House.
11. Özalp, R. E., Yılmaz, E., & Çalık, İ. (2026). Effects of stabilization and yoga training on neuromuscular performance in sedentary women. *European Journal of Applied Physiology*, 126(4), 1997-2009.
12. Petrič, M., Zaletel-Kragelj, L., Jakovljević, M., & Vauhnik, R. (2024). Hatha yoga, integrating the segmental stabilization exercise model, can improve trunk muscle endurance in healthy adults. *Frontiers in public health*, 12, 1487702.
13. Roley, N. (2019). The effect of Hatha yoga on muscular strength in healthy, young adults.
14. Stephen, G. G., Mohanan, K., Kandakurti, P. K., & Mathu Krishnan, R. (2025). Comparative analysis of the effects of real-time audio-visual feedback, yoga and pressure biofeedback stabilizer in core strengthening: a randomised controlled trial. *Biomedical Human Kinetics*, 17(1), 135-146.
15. Trivedi, S. (2021). Unveiling the Core Connection: An Electromyographical Exploration of Yoga Postures and Trunk Muscle Activity. *International Journal of Anatomy & Physiology*, 2(01), 01-05.