

# A Narrative Review on Yoga as a Tool for Psychological Wellness in the Operating Theatre: Evidence and Practical Tips for Anaesthesiologists

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## ABSTRACT

Burnout is highly prevalent among anaesthesiologists and is associated with negative outcomes at both the provider and organisational levels. Beyond the operating theatre and intensive care units, anaesthesiologists perform diverse clinical responsibilities. This review summarises the available evidence on yoga as a practical approach to supporting the mental well-being of healthcare professionals, with a particular focus on anaesthesiologists working in the high-pressure environment of the operating theatre. In view of these effects, yoga appears particularly relevant to the mental and physical demands of anaesthesia practice. However, the limited number of studies specifically involving anaesthesiologists, this review synthesises speciality-focused evidence alongside broader healthcare data to provide a structured framework for implementing yoga in anaesthesia practice.

**Keywords:** Anaesthesiology, Burnout, Professional, Occupational stress, Operating rooms

## INTRODUCTION

Burnout in health care first emerged in the late 1960s as a colloquial term to describe the emotional and psychological stress experienced by clinic staff caring for structurally vulnerable patients in free clinics [1]. Since then, burnout has been used to describe job-related stress in any health practice environment, from hospitals in urban communities to global health settings [2]. Burnout has been linked to negative outcomes at both the provider and organisational levels, including suicidal ideation, broken relationships, decreased productivity, unprofessional behaviour, and turnover [3].

Beyond the operating theatre and intensive care units, anaesthesiologists perform diverse clinical responsibilities. They are called upon to provide anaesthesia services in a variety of settings, including remote locations, pre-interventional consultations, pain clinics, magnetic resonance imaging suites, and radiotherapy facilities [4]. The practical application of yoga for anaesthesiologists and other healthcare staff must take into account the time-sensitive and demanding nature of their jobs. Evidence suggests that practising yoga in brief, structured sessions before shifts or in between cases is linked to better stress management, focus, and general well-being [5]. According to the results of another study, self-guided yogic breathing among anaesthesiology professionals had very low long-term adherence, suggesting that unsupervised programs are not very successful in this context [6]. Training schedules included mind-body programs for anaesthesiologists, which demonstrated a significant decrease in stress. This review aims to identify specific occupational stressors and mental health issues in the anaesthesia/OT setting, to review the clinical effectiveness and practical application of yoga interventions.

The present review elucidates the psychological and physiological mechanisms through which yoga may reduce stress and improve resilience, and suggest workable ways to incorporate structured yoga programs into workplace wellness initiatives for better mental and physical well-being in anaesthesiology practice. In line with the aims and objectives of this review, the published literature specifically addressing the role of Yoga in enhancing psychological wellness among anaesthesiologists is extremely limited. Only a handful of studies directly involve anaesthesiologists, which makes it difficult to draw strong conclusions about this subgroup alone. To

strengthen the evidence base and provide a broader perspective, we have therefore also included studies of physicians, nurses, residents, and other healthcare professionals who regularly work in the operating theatre environment. These groups share similar stressors such as high workload, irregular hours, and exposure to critical situations, making their psychological wellness highly relevant to the anaesthesiology context. By incorporating this wider pool of healthcare workers, the review aimed to capture the potential benefits of Yoga practices in mitigating occupational stress, improving resilience, and supporting mental health across the perioperative team. A structured literature search was conducted using PubMed, Scopus, and Google Scholar databases for studies published up to December 2025 using keywords “yoga”, “anaesthesiology”, “burnout”, and “occupational stress”. Relevant English-language articles involving healthcare professionals were included.

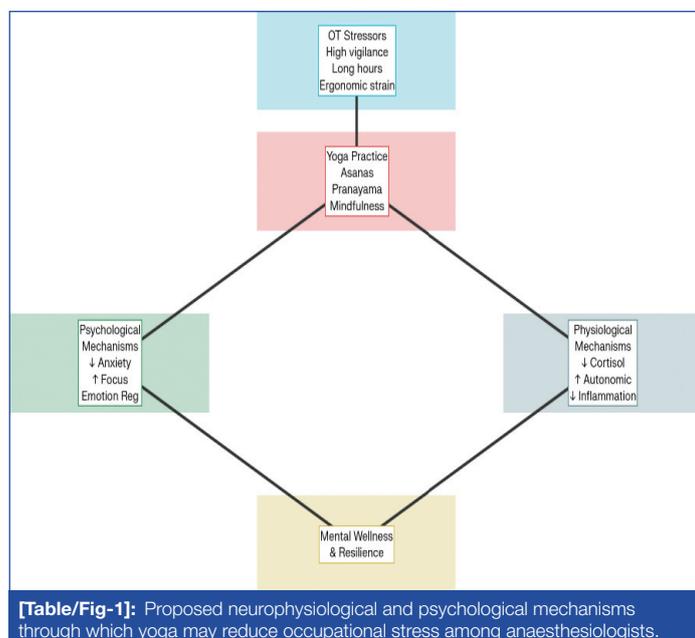
## DISCUSSION

### Psychological and Physiological Pathways of Yoga-induced Stress Relief

Yoga influences mental well-being through multiple interacting neurobiological and psychological mechanisms. Regular practice modulates the stress response by attenuating the Hypothalamic–Pituitary–Adrenal (HPA) axis activity, resulting in reduced cortisol secretion and lower levels of circulating pro-inflammatory mediators [7]. Neurocognitive studies further suggest that yoga enhances functional connectivity between the prefrontal cortex and limbic structures, promoting better emotional regulation and adaptive coping. Improvements in autonomic balance, characterised by increased parasympathetic tone and heart rate variability, contribute to a calmer physiological state during high pressure clinical work. In addition, the mindfulness component of yoga cultivates non-reactive awareness, self-compassion, and attentional control, which together reduce anxiety and cognitive overload [Table/Fig-1] [7,8].

### Occupational Stressors Faced by Anaesthesiologists in the Operating Theatre

Anaesthesiology, one of the so-called the “ROAD” specialities, is often perceived as a less stressful medical field. However, this assumption



underestimates the actual psychological strain anaesthesiologists face. The nature of their work, marked by professional isolation and limited long-term patient interaction, can lead to higher burnout scores compared to colleagues in surgery or internal medicine. Burnout is particularly prevalent in anaesthesiology, with rates nearing 40%, making it among the highest reported across medical specialties [9]. Contributing factors include environmental isolation, extended working hours, limited career autonomy, and personality traits often associated with choosing anaesthesia as a profession. Strategies to mitigate burnout involve system-level interventions that address workplace stressors, alongside individual approaches such as resilience-building and mindfulness training, both of which have shown effectiveness in reducing symptoms [9]. Vargas M et al., investigated the prevalence and risk factors of burnout among anaesthesiologists and intensive care physicians in Italy. An online survey was distributed to all members of the Italian Society of anaesthesia, analgesia, and intensive care via a dedicated website, using an anonymous questionnaire. Burnout was assessed with the Maslach Burnout Inventory (MBI), out of 3,654 invited physicians, 859 (23.5%) participated. According to MBI criteria, 10.2% (88) of respondents demonstrated a high level of burnout, characterised by elevated Emotional Exhaustion (EE), high Depersonalisation (DP), and low Personal Accomplishment (PA). A majority, 79.9% (686), reported a moderate degree of burnout, while 9.9% (85) showed low burnout with normal scores across all three dimensions [10]. Professional Burnout Syndrome (PBS) affects both individuals and organisations, marked by EE and reduced effectiveness from excessive work demands. Its consequences include lower productivity, diminished creativity, high turnover, and financial strain. Addressing PBS requires a dual approach: at the individual level, stress management and self-care build resilience; at the organisational level, fostering supportive environments, promoting work-life balance, and offering resources such as counselling and mentorship are essential [11].

### Need of Yoga for Anaesthesiologists and Perioperative Settings

Anaesthesiologists in North America, Europe, and India often work long and irregular shifts, which significantly contributes to burnout. They maintain a high level of alertness, respond quickly to crises, and are solely responsible for patient safety and airway management, which puts a strain on their emotions and minds during surgical procedures [12]. Uncertain role boundaries, tense relationships with surgical colleagues, and a lack of resources can lead to significant occupational stress, particularly in environments

with little institutional support. Team dynamics and workplace climate are also crucial [10].

Chronic exposure to operating theatre stressors such as prolonged vigilance, sleep deprivation, unpredictable intraoperative emergencies, and medicolegal responsibility leads to sustained activation of the sympathetic nervous system and the HPA axis in anaesthesiologists. This chronic neuroendocrine activation results in elevated cortisol levels, reduced heart-rate variability, impaired executive functioning, EE, and increased risk of burnout and medical errors among physicians [3,9]. Yogic breathing and meditative practices directly counteract these stress-induced changes by enhancing parasympathetic vagal activity, restoring autonomic balance, and suppressing cortisol secretion. Davis GP et al., demonstrated objective biological stress reduction using hair cortisol analysis among anaesthesia professionals practising yogic breathing, suggesting possible HPA-axis modulation in addition to subjective stress reduction. These findings suggest that a self-guided yogic breathing model may not be practical for anaesthesia professionals, who often face demanding schedules and limited discretionary time. However, the study offers valuable direction for future interventions. Programs incorporating structured guidance, scheduled sessions, or integrated institutional support may be more effective in promoting engagement and achieving meaningful reductions in stress and burnout within this high-risk workforce [7].

Mindfulness-based yoga interventions have also been shown to significantly reduce perceived stress and improve emotional regulation and attentional control among anaesthesiology residents, indicating enhanced prefrontal cortical regulation and attenuation of the limbic hyper-reactivity [12]. Similar neurocognitive and emotional benefits have also been reported in physicians and healthcare workers undergoing structured yoga and mindfulness programs, supporting improvements in executive control, sleep quality, and anxiety regulation [5,7,13]. Khan S et al., assessed the effects of yoga on 200 anaesthesiologists across various fields, including peri-operative care, pain medicine, critical care, and other specialised areas, were investigated. Semi-structured interviews revealed significant improvements in stress management, focus, concentration, patient care, and personal well-being. Yoga was found to reduce burnout and compassion fatigue, enhance empathy and compassion, and promote a holistic approach to patient care. The findings suggest that yoga can be a valuable complement to traditional anaesthesiology training, fostering a culture of wellness, resilience, and compassion within healthcare [12]. Sugiharto P and Ramlan AAW evaluated the effectiveness of a mindfulness-based intervention specifically designed for anaesthesiology residents. Thirteen residents specialising in critical care and anaesthesiology participated in a carefully structured four-week program that incorporated a variety of mindfulness practices, including deep breathing exercises, meditation sessions, and techniques aimed at enhancing awareness. Following an initial training session, participants were encouraged to engage in structured mindfulness practices in the comfort of their own homes. To measure the effectiveness of the intervention, stress levels were assessed using the Perceived Stress Scale-10 (PSS-10), a widely recognised tool for evaluating perceived stress. Remarkably, the findings revealed that even brief mind-body programs can significantly enhance the psychological well-being of anaesthesia trainees. After the four weeks, participants experienced a statistically significant reduction in their stress scores, underscoring the potential benefits of mindfulness in high-pressure medical training environments [8].

### Yoga-based Interventions in Other Healthcare Professionals: Relevance to Anaesthesiology

Evidence from other high-stress healthcare professions offers valuable insights. These results show consistent benefits that are probably applicable to anaesthesiology because of common

occupational stressors, even though they are not speciality-specific. A study by Korkmaz A et al., evaluated the effect of the Sudarshan Kriya Yoga (SKY) breathing and meditation program in reducing burnout and improving mental wellness among practising physicians. The experimental group received the SKY program, and the control group received stress management education. The SKY group demonstrated a significant amount of reduction in burnout, anxiety and improved sleep quality, compared to the control group [14].

A prospective interventional study conducted by Misra P et al., examined the impact of a structured yoga program on stress and overall well-being, specifically among frontline workers during the Coronavirus Disease 2019 (COVID-19) outbreak. They underwent a structured yoga program for 12 weeks, consisting of daily yoga sessions (asanas, pranayama, and relaxation techniques) led by trained professionals. After a duration of 12 weeks, participants showed a significant decrease in Depression, Anxiety, and Stress Scales (DASS-21) scores, reflecting marked reductions in stress, anxiety, and depressive symptoms. There was a significant reduction in HbA1c levels and the cholesterol-HDL ratio, suggesting improved metabolic health associated with the yoga intervention [13].

A study done by Singh S et al., investigated the effectiveness of yoga interventions for stress management among healthcare professionals. The yoga regimen included a combination of asanas, pranayama, and guided relaxation. The authors validated stress and anxiety pre and post-intervention. Post-analysis showed a significant amount of reduction in stress and anxiety. The intervention was well received by healthcare professionals, reported as feasible and sustainable within hospital work routines [5].

The single-arm clinical trial by Mollica RF and Fricchione GL explored the effects of a combined yoga and mindfulness intervention on affectivity, anxiety, mental health, and stress in healthcare workers. Hospital-based healthcare workers, including physicians, nurses, and allied staff were included in the study. The program included yoga practices (asanas and pranayama) paired with mindfulness techniques such as guided meditation and awareness exercises. Sessions were conducted over several weeks with regular guided practice. The participants had a significant decrease in stress levels and anxiety, and they also experienced positive shifts in emotional states with a reduction in occupational stress and personal challenges [15].

Loewenthal J et al., did a study to evaluate the feasibility and preliminary effectiveness of a yoga-based mind-body intervention designed for medical residents and healthcare professionals experiencing occupational-related stress. The study included medical residents and healthcare professionals from a large teaching hospital. The regime included mindful physical postures (asanas), breathing techniques (pranayama), and meditation, delivered through regularly scheduled sessions designed to accommodate busy clinical routines with flexibility. The participants observed a decrease in stress levels and an improvement in emotional control [16].

### Yogic Strategies for Preoperative Routines in Anaesthesiology

Research highlights the potential for anaesthesiologists to integrate yoga into perioperative care, particularly as a means to alleviate patients' anxiety and enhance their overall surgical experience. In a controlled study involving adult cardiac surgery patients, participants underwent a short-term yoga-based breathing intervention for five consecutive days prior to their procedures. While one group received no intervention, others were instructed in various yoga breathing techniques. Anxiety levels were meticulously assessed at key points: before, during, and after surgery. The findings revealed that this focused breathing practice significantly decreased both pre-surgery and postsurgery anxiety levels, demonstrating marked improvements in state anxiety, trait anxiety, and total anxiety scores

for the yoga group compared to the control group [15]. In a separate investigation, a randomised double-blind controlled trial involving 90 patients undergoing orthopaedic surgery under regional anaesthesia was conducted. These participants were randomly assigned to three distinct groups: a control group, a group that practised the calming technique of alternate nostril breathing (pranayama), and a group that viewed a preoperative multimedia information video designed to educate and inform. The results evidenced that engaging in yoga breathing exercises, whether practised alone or in conjunction with informative videos, significantly contributed to a reduction in anxiety and pain during the perioperative period. The pre- and postoperative anxiety scores were strikingly lower in both the yoga and multimedia groups compared to the control group [16].

A recent systematic review focused on meditation within the perioperative context and synthesised findings from 16 randomised controlled trials exploring various meditation-based practices among surgical patients and individuals undergoing invasive procedures. Among the eight studies evaluating pain management, five demonstrated that meditation led to notable reductions in pain scores, while three showed no significant change. Regarding anxiety, nine out of ten studies documented that meditative techniques effectively reduced perioperative anxiety, with one study reporting no observable difference [17]. Although much of the current evidence emphasises patient outcomes rather than clinician perspectives, these low-cost, low-risk interventions offer promising opportunities for anaesthesiologists and operating theatre staff to enrich standard perioperative care, thereby enhancing patients' well-being during their surgical journeys.

### CONCLUSION(S)

The review demonstrates that yoga-based interventions delivered in various formats customised according to healthcare professionals can reduce work-related stress, anxiety, and burnout while enhancing emotional well-being, resilience, and physical health markers such as sleep quality and metabolic function. These observations suggest that incorporating yoga into institutional wellness programs could may offer a practical and holistic approach to promote mental well-being and support the resilience of healthcare staff working in high-pressure clinical environments.

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