

# Chapter 15

## Psychoneuroimmunology of Yoga and Meditation

**Sibin Mathew Negin**

 <https://orcid.org/0000-0003-2216-6266>

*Christ University, India*

**Yogesh Kanna Sathyamoorthy**

*Christ University, India*

### **ABSTRACT**

*Yoga and meditation were integral to Ayurveda and were prevalent from 1500 BC to 400 AD. The psychoneuroimmunology of yoga and meditation has been of interest in recent times, and much research is focused on the influence of meditation and yoga on cell telomerase activity, neuroendocrine system, cells of the immune system, oxidative stress, cell aging, and cancer recovery. Yoga and meditation reduce stress and depression and improve sleep quality. Stress-immune relationship influences all age groups, especially individuals with clinical diagnoses, and is a factor in lifestyle diseases and cancer. Elevated levels of oxytocin, serotonin, and dopamine were associated with bliss and positivity, which contribute to the reduction in inflammation and pain perception among practitioners. The present chapter focuses on the psychoneuroimmunology of the effects of yoga and meditation on improving immunity and fast and efficient recovery.*

### **1. INTRODUCTION**

#### **1.1 Brief History of Yoga and Meditation Research**

Until the 1960s, the term yoga and meditation were not popular in Western culture, even though they had been practiced widely in Eastern countries for thousands of years. The Vedic culture from 1500 BC to 400 AD emphasized the healthy living and prophesized the importance of healthy mind and healthy body. The term 'yoga' signifies the union of mind, body, and soul. During the Vedic period, the Buddhists and Taoists also emphasized meditation, yoga, and physical training to maintain a high quality of life. Spiritual, mental, physical, and cultural well-being were the core principles of any yoga and meditation practice. Following industrialization and colonization, the popularity of these practices declined in the

DOI: 10.4018/979-8-3693-7432-0.ch015

western culture except for some notable mentions like the contributions of Swami Vivekananda, Sri Aurobindo, and Swami Nitya. The spirituality of Tibetan Buddhism also had to face political conflicts, and the world ignored the importance of well-being as it entered dark times of world wars. Following the world war, there was a cry in the West to reform the nations and focus more on peace. As a result, the increased alliance of the USSR with India and China led to the popularity of meditation and yogic practices in Western countries. In the 1960s, the rebellious movement of ‘hippies’ in the US led to the dependence on psychedelics to attain trans states, and the popularity of terms like yoga, meditation, and tantra became popular. Even though the hippy movement gave popularity to yogic practices, the essence of the practice, which is the well-being of the entire world, was ignored or twisted. However, it provided the opportunity for people to learn Indian and Buddhist ways of meditation and yoga. Following this in the 1970s, the increased interest in understanding the role of meditation and yoga in improving physical and psychological well-being led to various scientific explorations (Black & Slavich, 2016).

The scientific exploration of the benefits of meditation and yoga started with the works of Jon Kabat-Zinn (Kabat-Zinn, 2003). Jon Kabat Zinn’s approach was scientific and secular, leading to the mass popularization of mindfulness in research and common culture. Even though mindfulness is only a component in the vast ocean of meditation, mindfulness-based interventions were widely accepted to practice to attain well-being. There is criticism that the spiritual nature of meditation was ignored by the mindfulness movement, and the secular approach of Buddhist traditions was easily accepted by laymen and scholars. Mindfulness-Based Stress Reduction (MBSR) programs were widely practiced, and data piled up supporting mindfulness-based interventions for improving well-being (Kabat-Zinn, 2003; Kabat-Zinn et al., 1992). The meditation practices of Indian culture and Yoga practices were less investigated, and out of the eight-fold path in Buddhist practice, only mindfulness was given more emphasis.

Transcendental Meditation by Maharishi Mahesh Yogi, Integral Yoga by Swami Satchidananda, kriya yoga by Paramahansa Yogananda, and Qigong also received acceptance, and researches were focused on the influence of these meditative practices on physical health, recovery from illness, influence on immunity, positive effects on aging, reducing stress and anxiety, reducing depression and improving the psychological well-being. Increased awareness of the benefits of exercise on health led to the opening of training programs based on yoga. Later, in the 2000s, the increased understanding of neuroscience led to the urge to investigate consciousness. Various states of awareness were investigated, and the trans-state was studied from the perspective of psychedelics and various meditative techniques across the globe. The escalated interest in investigating the effect of meditation and yoga on consciousness motivated the study of the effect of yoga and other meditative strategies on improving health and well-being. From 5% of the adult population in the US practicing yoga, the number increase to 16% by 2022.

## **1.2 Brief Introduction to Psychoneuroimmunology**

The investigations in yoga and meditation on well-being, improved immunity, and better recovery played an influential role in the development of the field of ‘psychoneuroimmunology’. Ader defines psychoneuroimmunology as the study of interactions between behavior, neural, endocrine function, and immune processes (Ader, 1981). The brain interacts with the physiological responses of the body bidirectionally. The molecular events in the brain influence physiology through hormones and neurotransmitters. The research findings suggest that the positive and negative affective states impact the neuroimmune response in the body. The early crucial findings in psychoneuroimmunology came from the works of Ader and Cohen. In 1975, Ader and Cohen experimentally showed how classical conditioning alters the

22 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/psychoneuroimmunology-of-yoga-and-meditation/372774](http://www.igi-global.com/chapter/psychoneuroimmunology-of-yoga-and-meditation/372774)

## Related Content

---

### Human Resource Management and the Rollout of Industry 4.0: Investigating the Impact of Artificial Intelligence

Subhashini Durai, Geetha Manoharan, T. Sathya Priya, R. Jayanthi, Abdul Razak and Sunitha Purushottam Ashtikar (2024). *Cognitive Behavioral Neuroscience in Organizational Settings* (pp. 142-167).

[www.irma-international.org/chapter/human-resource-management-and-the-rollout-of-industry-40/349327](http://www.irma-international.org/chapter/human-resource-management-and-the-rollout-of-industry-40/349327)

### Auditory Profile of Children With Some Rare Neurodevelopmental Disorders

Saransh Jain and Vijaya Kumar Narne (2019). *Emerging Trends in the Diagnosis and Intervention of Neurodevelopmental Disorders* (pp. 32-55).

[www.irma-international.org/chapter/auditory-profile-of-children-with-some-rare-neurodevelopmental-disorders/215162](http://www.irma-international.org/chapter/auditory-profile-of-children-with-some-rare-neurodevelopmental-disorders/215162)

### Brain Tumor and Its Segmentation From Brain MRI Sequences

Sanjay Saxena, Puspanjali Mohapatra and Swati Pattnaik (2019). *Early Detection of Neurological Disorders Using Machine Learning Systems* (pp. 39-60).

[www.irma-international.org/chapter/brain-tumor-and-its-segmentation-from-brain-mri-sequences/230110](http://www.irma-international.org/chapter/brain-tumor-and-its-segmentation-from-brain-mri-sequences/230110)

### Neuroinflammation and Binge Eating

Abraham Olufemi Asuku and Gbonjubola Oyinlola Ogungbangbe (2024). *Neuroscientific Insights and Therapeutic Approaches to Eating Disorders* (pp. 147-170).

[www.irma-international.org/chapter/neuroinflammation-and-binge-eating/351689](http://www.irma-international.org/chapter/neuroinflammation-and-binge-eating/351689)

### Linguistic Markers in Individuals With Symptoms of Depression in Bi-Multilingual Context

Anbu Savekar, Shashikanta Tarai and Moksha Singh (2019). *Early Detection of Neurological Disorders Using Machine Learning Systems* (pp. 216-240).

[www.irma-international.org/chapter/linguistic-markers-in-individuals-with-symptoms-of-depression-in-bi-multilingual-context/230118](http://www.irma-international.org/chapter/linguistic-markers-in-individuals-with-symptoms-of-depression-in-bi-multilingual-context/230118)