



# “Yoga And Ayurveda In The Management Of Substance Abuse: Evidence, Challenges, And Future Directions”

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## Abstract

**Background** - With severe physical, psychological and societal repercussions, substance abuse is a serious worldwide health concern. While pharmaceutical interventions are frequently the focus of conventional treatments, integrative therapies such as *Yoga* and *Ayurveda* offer a comprehensive approach to substance use disorders (SUDs). This review investigates how *Yoga* may be included into *Ayurvedic* drug abuse treatment plans.

**Objective** - The purpose of this study is to evaluate the scientific data pertaining to the combined use of *Yoga* and *Ayurveda* in the treatment of substance dependence, pinpoint obstacles to their integration, and make recommendations for future research areas.

**Methods** - A review of the body of research was done, with an emphasis on studies that look at how *Yoga* and *Ayurveda* affect substance dependence. Benefits to the body and mind, including stress reduction, emotional control, and detoxification, were taken into account while evaluating treatment results.

**Result** - With its emphasis on physical postures, breathing techniques, and awareness, *Yoga* has demonstrated promise in lowering stress, enhancing mental health, and assisting with the *Ayurvedic* cleansing procedures. With its *Panchkarma* therapies, *Shaman Chikitsa*, and customized lifestyle changes, *Ayurveda* enhances the advantages of *Yoga* in promoting long-term healing. The combination strategy seems to improve mental and physical resilience, encouraging long-term drug abuse rehabilitation.

**Challenges** - Cultural adaptability, patient commitment to alternative therapies, and the absence of established treatment procedures are major obstacles to combining *Yoga* with *Ayurveda*. A multidisciplinary approach to therapy and careful consideration of patient preferences are necessary for the integration of different treatments.

**Future directions** - Large-scale clinical studies should be the main focus of future research to better understand how *Yoga* and *Ayurveda* work together to treat drug misuse. Establishing successful, evidence-based models for treatment and rehabilitation requires cooperation between holistic practitioners and medical specialists.

**Key words** – *Yoga*, Substance abuse, *Panchkarma* therapies, *Shaman Chikitsa*.

## Introduction

The detrimental or dangerous use of psychoactive substances, such as alcohol, tobacco, and illegal narcotics, is sometimes referred to as substance abuse. It frequently results in social, psychological, and physical issues that have a major impact on people's and communities' quality of life. Substance misuse has far-reaching effects that include a variety of health issues, including neurological impairments, liver damage, respiratory conditions, and cardiovascular ailments. Additionally, mental health conditions including anxiety, depression, and trauma-related disorders frequently interact with addiction, making recovery and treatment more difficult. Around 296 million individuals between the ages of 15 and 64 took drugs globally in 2021, making up 5.8% of the world's population in this age range, according to the United Nations Office on Drugs and Crime's (UNODC) World Drug Report 2023. This marks a 23% increase from 2011, partly due to population growth. Cannabis continues to be the most widely used drug, with an estimated 219 million users in 2021.<sup>i</sup>

Pharmacological remedies (such as methadone or buprenorphine for opioid addiction) and behavioural therapies (such as cognitive-behavioural therapy or contingency management) are the mainstays of addiction treatment in modern research.<sup>ii</sup> Even while many people have found success with these methods, relapse rates are still high, suggesting the need for more comprehensive, multidimensional treatment plans that address the emotional, psychological, and spiritual components of addiction in addition to the physiological reliance. Although substance abuse therapy has changed dramatically over time, conventional methods are still quite



important for assisting people in kicking their addictions. These approaches frequently concentrate on behavioural, psychological, and pharmacological therapies with the goal of addressing the emotional as well as the physical components of drug use disorders.

In ayurveda these substances can be understand as '*Madakari Dravya*'<sup>iii</sup> (the substance which takes away the discriminative power of an individual by the virtue of *Tamo*) and the concept of substance abuse can be correlated with *Mada*. As per Acharya *Amarkosha*, the word '*Mada*' is taken from the word '*Madee*' which means '*Harsha*'. According to Acharya Charak the heart gets afflicted by the excessive intake of alcohol on account of the attributes of alcohol resulting in *Harsha* (acceleration), *Tarsha* (passionate desire), *Rati* (erotic stimulation), *Sukham* (sense of pleasure) and varieties of psychic morbidities of *Rajasika* and *Tamasika* nature depending upon the mental attitude of the person ending in *Moha* – *Nidra* (Coma). This mental perversion caused by alcohol (*Madya Vibhram*) is called *Mada* or intoxication.<sup>iv</sup> Charak quoted *Satvavajaya Chikitsa* as '*Ahitebhyoarthebhyo Manonigraha*'<sup>v</sup> to control the mind and to withdraw the mind from unwholesome objects which can cause disease. *Satvavajaya Chikitsa* can be used for the treatment of substance abuse where the balance of *Raja* and *Tama Guna* is achieved. Yoga was used as *Satvavajaya Chikitsa* which emphasises the principle of '*Chitta Vritti Nirodha*' which means controlling the mind from different unwanted thoughts.<sup>vi</sup>

Integrated yoga practice traditionally involves meditation, exercise and spiritual teaching; the integrated form was found to be more beneficial for physical, psychological and spiritual well-being than yoga practiced primarily as a form of exercise for the management of addiction. A study revealed that cortisol levels decreased by approximately 31% in people who practiced integrative yoga as compared to those who practiced yoga as a form of physical exercise.<sup>vii</sup> This study suggests that practicing yoga with the intention that it is part of one's spirituality may be related to better outcomes. This review article aims to critically examine the existing evidence on yoga's role in substance abuse treatment, evaluate its potential benefits and limitations, and explore future directions for integrating yoga into conventional addiction therapy. By analysing scientific studies, clinical trials, and real-world applications, this study will contribute to the ongoing discourse on holistic and alternative approaches to substance abuse recovery. Understanding the mechanisms through which yoga influences addiction-related behaviours and mental health can help bridge the gap between traditional treatment models and emerging complementary therapies, ultimately leading to more comprehensive, patient-cantered approaches to addiction management.

## Substance abuse and its consequences

### 1. Common Clinical manifestations -

S. No.	Name of Substance	Common Clinical manifestations
1.	Alcohol	<ul style="list-style-type: none"> <li>❖ Increased alcohol tolerance</li> <li>❖ Nausea - vomiting</li> <li>❖ Anxiety, depression, irritability, insomnia</li> <li>❖ Fatigue, tremors, seizures</li> <li>❖ Headaches, palpitations</li> <li>❖ Chronic liver disorder</li> <li>❖ Delirium tremens (high fever, hallucinations, intense agitation)</li> <li>❖ Wernicke's encephalopathy</li> <li>❖ Korsakoff's psychosis etc.</li> </ul>
2.	Heroin	<ul style="list-style-type: none"> <li>❖ Needle marks on arms or legs</li> <li>❖ Sleeping at unusual time</li> <li>❖ Sweating</li> <li>❖ Vomiting</li> <li>❖ Coughing and sniffing</li> <li>❖ Twitching</li> <li>❖ Loss of appetite</li> <li>❖ Contracted pupils with no response etc.</li> </ul>
3.	Cannabis	<ul style="list-style-type: none"> <li>❖ Reddening of eyes and decreased intra-ocular pressure</li> <li>❖ Increased heart rate</li> <li>❖ Depression</li> <li>❖ Insomnia</li> </ul>



		<ul style="list-style-type: none"> <li>❖ Anxiety</li> <li>❖ Flu-like symptoms</li> <li>❖ Weight changes etc.</li> </ul>
4.	Tobacco	<ul style="list-style-type: none"> <li>❖ Headache, palpitation</li> <li>❖ Anxiety, insomnia</li> <li>❖ Tremors</li> <li>❖ Constipation</li> <li>❖ Increased tendency to bronchitis, oral and lung cancers</li> <li>❖ Heart disease</li> <li>❖ Burger's disease etc.</li> </ul>
5.	Cocaine	<ul style="list-style-type: none"> <li>❖ Increased Hyperactivity</li> <li>❖ Euphoria</li> <li>❖ Irritability &amp; anxiety</li> <li>❖ Talking a lot followed by depression</li> <li>❖ Sleeping at odd times excessively.</li> <li>❖ Going a long period of time without eating or sleeping.</li> <li>❖ Dilated pupils</li> <li>❖ Dry mouth and nose etc.</li> </ul>
6.	Inhalants	<ul style="list-style-type: none"> <li>❖ Watery eyes</li> <li>❖ Impaired vision, memory and thought</li> <li>❖ Secretion from the nose or rashes around nasal area and mouth</li> <li>❖ Headache and nausea</li> <li>❖ Drowsiness</li> <li>❖ Anxiety</li> <li>❖ Irritability etc.</li> </ul>

## 2. Current treatment approaches and their limitations –

*Acharya Charak* identified three forms of *Aushadha* in ayurvedic science that can be utilized to treat substance abuse - 1. *Devavyapashraya* 2. *Yuktivyapashraya* 3. *Satvavajaya*.<sup>viii</sup> Numerous drugs are utilized at *Yuktivyapashraya Chikitsa* to treat various addiction-related withdrawal symptoms. First, using a variety of medications, such as *Panchkola Churna* and *Lavanbhaskar Churna*, *Deepan* and *Pachan* are performed for the *Ama Dosha*. Some other medications are also prescribed for the management of substance abuse like – *Ashwagandharishta*,<sup>ix</sup> *Mrudvikasava*,<sup>x</sup> *Vishtinduka Vati*, *Sameergajkesari Rasa*,<sup>xi</sup> *Kushmand Avaleha* etc. In addition, drug addiction patients get a variety of *Panchkarma* treatments, such as *Abhyanga* (massage), *Swedana* (sudation), *Basti* (enema), *Shirodhara* (oil application on head), *Nasya* (nasal medication) etc.<sup>xii</sup> During the follow-up period, *Rasayana Dravya* are also advised as *Balya*, immune modulators. While Ayurveda provides several potential benefits in addiction management, its current treatment approaches have certain limitations that hinder widespread acceptance and effectiveness in clinical settings –

- Limited management of psychological aspects
- Dependency on herbal remedies alone
- Lack of immediate detoxification support
- Slow action and long-term commitment required

## Evidence supporting Yoga in substance abuse treatment

### Historical background and core principle of Yoga

The word ‘Yoga’ is derived from the Sanskrit root ‘Yuj’, meaning ‘to join’ or ‘to yoke’ or ‘to unite’. *Yoga* Sanskrit word has been incorporated into English dictionaries. The word *Yoga* is sacred in the Vedas. *Yoga* first made an appearance in the *Rig Veda* and *Shiva* was the first Yogi according to legend.<sup>xiii</sup> *Yoga* is an ancient practice that originated in India over 5,000 years ago. The *Veda*, particularly the *Rigveda*, were the first to mention *Yoga* and associated it with meditation and spiritual discipline.<sup>xiv</sup> *Yoga* evolved with the aid of the *Upanishada* and *Bhagavad Gita*, which emphasized knowledge, self-control, and devotion. The foundational text of classical *Yoga* is *Patanjali's Yoga Sutra*, which were written between 200 BCE and 400 CE.<sup>xv</sup> *Yoga* was systematically organized into an eight-limbed path (*Ashtanga Yoga*). Later, throughout the middle-ages, *Hatha Yoga* evolved, focusing on physical postures (*Asana*) and breath control (*Pranayama*) to prepare the body and mind for more profound states of meditation.



The essence of *Yoga* lies in achieving harmony between the body, mind, and spirit. Its core principles include -

1. Union (*Yoga* means "union" in Sanskrit) – It integrates the physical, mental, and spiritual dimensions of life.
2. Eight limbs of *Yoga* (*Ashtanga Yoga*) – *Patanjali's* system includes moral discipline (*Yama*, *Niyama*), physical postures (*Asana*), breath control (*Pranayama*), withdrawal of senses (*Pratyahara*), concentration (*Dharana*), meditation (*Dhyana*), and ultimate liberation (*Samadhi*).
3. Balance and Mindfulness – *Yoga* promotes inner peace, self-awareness, and emotional stability.
4. Self-Discipline (*Tapas*) – Self-control, resilience, and general well-being are all improved by consistent practice.
5. Holistic Healing – *Yoga* promotes both physical and mental well-being by integrating movement, breathing, and meditation.

### Previous studies showing effect of *Yoga* in substance abuse management

1. **Study on *Yoga* for alcohol dependence:** A study explored the impact of *Yoga* on individuals with alcohol dependence. Participants who engaged in a structured *Yoga* program showed significant improvements in anxiety, depression, and alcohol craving reduction compared to the control group.<sup>xvi</sup>
2. ***Yoga* and opioid dependence:** The study found that *Yoga* practice was associated with a reduction in opioid cravings and withdrawal symptoms, alongside improvements in mood and emotional regulation.<sup>xvii</sup>
3. ***Yoga* and nicotine use disorders:** A review done on patients with nicotine-use disorders reported positive effect of various *Yoga* on self-reported abstinence rates as well as various craving measures at different time points during follow-up.<sup>xviii</sup>
4. ***Yoga* for stress reduction and craving control in SUDs:** A study assessed the role of *Yoga* in reducing stress and cravings in individuals undergoing treatment for substance use disorders. Results showed a significant decrease in stress and substance cravings, highlighting *Yoga's* role in supporting the recovery process.<sup>xix</sup>

### Mechanisms through which *Yoga* helps in the management of substance abuse

In chronic drug addicts a compulsive pattern of drug seeking and uncontrolled intake is observed. This compulsive behaviour is attributed to the dysregulation of the brain's inhibitory mechanism because of prolonged drug use. In addicted individuals, dysregulation of the anterior cingulate, dorsolateral prefrontal cortex and orbitofrontal cortices is reported.<sup>xx</sup> These regions of the brain are responsible for inhibitory control over reward related behaviour. The practice of *Yoga* requires maintenance of awareness about the object of attention, respiratory sensations and interoceptive feedback from body sensations and mental activity. Such interoceptive awareness helps in the inhibition of emotional and behavioural distractions.<sup>xxi</sup>

Because of the withdrawal symptoms, drug abusers frequently have cravings for these substances during the recovery phase. *Yoga* has a strong focus on mindfulness and enhances bodily awareness while promoting peace and mental clarity. By harmonizing the mind and body while doing different poses (*Asana*), *Ashtanga Yoga* helps patients develop strong willpower that aids in their sobriety throughout this time. The patient can get a better knowledge of his physical and emotional situations by regularly practicing *Asana* like *Shavasana*, *Tadasana*, and others that increase his awareness of his body and senses. By lowering tension and encouraging relaxation, *Asana* helps the patient control his emotions and ward off the desire to utilize drugs. Breathing techniques, or *Pranayama*, are also recommended for mental relaxation. It enhances self-regulation and impulse control by regulating respiration and movement and increasing blood flow to the brain. The following processes describe how *Yoga* helps with addiction treatment –

#### A. Stress Response System Control (HPA axis modulation)<sup>xxii</sup> -

- Substance addiction frequently causes the hypothalamic-pituitary-adrenal (HPA) axis to become dysregulated, which increases tension, anxiety, and makes it harder to deal with triggers.
- The stress hormone cortisol is lowered by *Yoga*, especially *Pranayama* (breathwork) and meditation, which helps people cope with stress without turning to drugs.
- The parasympathetic nervous system is activated by techniques like *Shavasana* (corpse posture) and *Anuloma-Viloma* (alternate nostril breathing), which encourage emotional stability and relaxation.

#### B. Decrease in cravings and symptoms of withdrawal<sup>xxiii</sup> -

- *Yoga* helps in dopaminergic regulation, which is crucial since substance use artificially boosts dopamine, leading to dependence and withdrawal symptoms.
- Mindfulness-based *Yoga* improves self-awareness and reduces compulsive drug-seeking behavior.



- Specific postures like *Balasana* (child's pose) and *Vrikshasana* (tree pose) help individuals stay grounded and manage cravings.

#### **B. Neuroplasticity and rewiring the brain<sup>xxiv</sup> -**

- Because addiction changes the brain's reward system, it becomes harder for addicts to enjoy life without using drugs.
- The prefrontal cortex is stimulated by yoga and meditation, which improves self-control, impulse control, and judgment.
- Research indicates that consistent *Yoga* practice enhances grey matter density in regions linked to self-awareness and emotional control.

#### **C. Emotional regulation and mood stabilization<sup>xxv</sup> -**

- A lot of people use drugs as a coping method for trauma, anxiety, or sadness.
- The neurotransmitters serotonin and GABA (gamma-aminobutyric acid), which support peace and wellbeing, are produced more when *Yoga* and mindfulness exercises are practiced.
- *Dhyana* (meditation) and *Bhramari Pranayama* (humming bee breath) are useful techniques for reducing emotional upheaval.

#### **D. Enhancement of social support and mindfulness<sup>xxvi</sup> -**

- As demonstrated in 12-step recovery programs, group *Yoga* sessions foster a feeling of community and lessen loneliness, two significant risk factors for relapse.
- Being mindful *Yoga* increases a person's resistance to desires by teaching them to notice their thoughts and feelings without behaving rashly.

#### **E. Physical detoxification and strength building<sup>xxvii</sup> -**

- The body is weakened by substance misuse, which results in exhaustion and weakened immunity.
- Some *Yoga* postures (asana), such the forward Bends (*Paschimottanasana*) and twisting pose (*Ardha Matsyendrasana*), promote kidney and liver function, which helps with detoxification.
- *Yoga* restores general health by enhancing lung capacity, digestion, and blood circulation.

### **Challenges in Integrating Yoga into Substance Abuse Treatment**

One of the many obstacles to incorporating *Yoga* into drug dependence therapy is the absence of uniform guidelines and a defined framework for its therapeutic usage. There is no universally accepted type of *Yoga* that is best for addiction rehabilitation, in contrast to traditional treatments with set rules. Additionally, there aren't enough extensive clinical studies to offer solid scientific proof, which makes it harder for treatment facilities to embrace it. It might be difficult to customize *Yoga* practice since not all instructors or treatment programs have the know-how to do so, especially for people with serious drug addiction issues. Integration of *Yoga* is further complicated by psychological and cultural hurdles. Many people may be resistant to *Yoga* because of its spiritual connotations, or they may find it awkward to practice in groups because of the stigma associated with substance misuse. Logistically, addiction treatment facilities might not have the time, money, or skilled personnel to regularly include *Yoga* in their curricula. Furthermore, there is currently a lack of accurate measures to evaluate *Yoga* effects on long-term recovery, relapse rates, and general health outcomes, which limits the evaluation of its efficacy.

### **Future directions for the integration of Yoga with substance abuse management**

There is a lot of promise for the future of combining *Yoga* and ayurvedic treatment for drug misuse recovery, especially in developing a comprehensive, customized treatment plan that takes into account the psychological as well as the physical aspects of addiction. In addition to standardizing procedures that may be used consistently across treatment facilities, it will be essential to further research to develop evidence-based methods for integrating yoga and Ayurveda. Expanding training programs for medical professionals on the complementary advantages of *Yoga* and ayurvedic treatments is necessary, with a focus on how these practices can be used individually according to each patient's needs and stage of recovery. Furthermore, clinical studies that evaluate the integrated approach's long-term effectiveness will contribute to the provision of solid facts that will strengthen its legitimacy. Combining the mindfulness practices of *Yoga* with the detoxification and herbal treatments of Ayurveda can provide a more thorough, long-lasting recovery route that addresses the mental, bodily, and spiritual components of addiction for long-lasting recovery.





## Conclusion

Here, incorporating Yoga with Ayurvedic substance misuse therapy provides a comprehensive and encouraging method of tackling the intricate nature of addiction. While Ayurveda concentrates on bodily purification, balance restoration, and general well-being, Yoga improves emotional control, stress resilience, and mindfulness. These two disciplines provide complementing advantages. Despite obstacles including cultural reluctance, a lack of established procedures, and a paucity of clinical data, there is no denying that Yoga and Ayurveda have the ability to complement one another in drug addiction treatment. Prioritizing thorough research, clinical trials, and the creation of individualized treatment programs that capitalize on the advantages of both modalities is crucial going ahead. Yoga and Ayurveda will be progressively incorporated into conventional addiction therapy by developing evidence-based practices and increasing professional training. In the end, this holistic approach offers a sustainable route for those suffering from substance misuse, supporting not just detoxification but also long-term rehabilitation by encouraging physical, emotional, and spiritual restoration.

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