

# Ayurvedic Perspective on Management of Nicotine Addiction - A Review

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## ABSTRACT

**Introduction:** Addiction is defined as a psychological or physiological dependence on a substance or habit that is beyond one's control. Nicotine is the most widely consumed psychotropic drugs worldwide. The common use of nicotine increases the risk of noncommunicable diseases to many folds. It's a long-term brain disorder that promotes compulsive substance usage despite negative effects. Addiction has a wide-ranging negative impact on humans, as well as social consequences. Sudden withdrawal from any addictive medication might result in psychosomatic illness. **Aim:** The goal of this study was to highlight the different Ayurvedic principles that can be used to prevent and manage addiction. **Materials and Methods:** This article's content is based on personal clinical experiences as well as clinical studies published in index and non-index journals that deal with drug addiction, withdrawal, and management. To acquire relevant content, Ayurvedic *Samhitas* with commentaries and textbooks of *Ayurveda* and Modern medicine are recommended. **Results:** The *Ayurveda* has ancient science which has stores of herbal, mineral or Herbo mineral medication for prevention and cure of disease including addiction and withdrawal of drugs abused. The *Padansika Karma* is a unique method described in *Ayurveda* to stop the any harmful or non-harmful substance which homologous to human being, by taper up manner. **Conclusion:** In addition, symptomatic withdrawal treatment by using concern drug, medicated smoke/ *Dhumpana* as replacement therapy, psychological counselling, *Achara Rasayana*, *Sadvritta*, and *Satvavajay Chikitsa* are applicable.

**Keywords:** *Ayurveda* management, Dhumapana de-addiction, Herbal preparation, Nicotine addiction, *Padansika karma* *Asian Pac. J. Health Sci.*, (2022); DOI: 10.21276/apjhs.2022.9.2.40

## INTRODUCTION

Addiction is defined as a recurrent, chronic brain disorder marked by obsessive tobacco seeking and use despite harmful effects. Tobacco usage is a major cause of death from cancer, heart disease, and pulmonary disease. Cigarette smoking is linked to infections of the respiratory system and other diseases, osteoporosis, reproductive abnormalities, unfavorable surgical outcomes, delayed wound healing, duodenal and stomach ulcers, and diabetes.<sup>[1]</sup> In addition, smoking has a strong relationship to fire- and trauma-related injuries. Toxins in tobacco smoke make people unwell when they are exposed to them. Despite the fact that nicotine has a minor, if any, role in the development of smoking-related ailments, nicotine addiction is the root of many diseases.

Tobacco was first introduced to India about 400 years ago by the Portuguese,<sup>[2]</sup> and it has since become an integral part of the socio-cultural fabric of many societies. In fact, India is only second to China in terms of tobacco production and use (Sridharan, 2014). China, Russia, the United States, Indonesia, Japan, Germany, India, Turkey, South Korea, and Vietnam are the top ten smoking countries (cigarette consumption only) (Eriksen *et al.*, 2012; Armbrecht, 2015).

Nicotine is a colorless, toxic alkaloid made up of carbon, hydrogen and nitrogen. Nicotine addiction is one of the leading causes of death and disease in India, with about 1.35 million people dying each year. In the country, a wide range of tobacco products are offered at extremely affordable prices.<sup>[3]</sup>

According to the Global Adult Tobacco Survey India, 2016-17, approximately 267 million adults (15 years and older) in India use tobacco (29% of all adults). Smokeless tobacco is the most popular type of tobacco in India, and popular brands include khaini, gutkha, betel quid with tobacco, and Zarda. Bidi, cigarettes, and hookah are the most common tobacco smoking methods.<sup>[4]</sup>

If youngsters adopt this behavior as a result of the environmental effect, it becomes difficult to break, with greater harmful effects on

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the developing brain.<sup>[5]</sup> The mortality rate in India due to nicotine addiction is rising every year.<sup>[6]</sup> Different surveys, such as the National Household Survey, Drug Abuse Monitoring System, and Rapid Assessment Survey, were conducted by the Ministry of Social Justice and Empowerment to assess the addiction problem.<sup>[7]</sup>

## Aim and Objectives

1. To evaluate, elaborate and discuss the Nicotine addiction as per *Ayurveda*
2. To evaluate, elaborate and discussed the solution of Nicotine addiction and its withdrawal as per *Ayurveda*.

## MATERIALS AND METHODS

The information in this article comes from personal clinical experiences as well as a variety of clinical studies published in index and non-index journals that deal with Nicotine addiction, withdrawal, and management. The Ayurvedic *Samhitas* and their commentaries have been examined. To gather literature related to the topic, an Ayurvedic and modern medicine textbook was used.

### Major Facts about the Use of Tobacco

Tobacco use in all forms, including second-hand or passive smoke, is the leading cause of preventable death worldwide, according to the World Health Organization (WHO., 2015).<sup>[8]</sup> Tobacco is responsible for approximately 6 million fatalities per year, with that number anticipated to climb to 10 million by 2020 or early 2030, with 7 million of those deaths occurring in developing countries. The phases of these diseases in a man are determined by the amount and duration of tobacco use.

### How Does Nicotine Affect?

Smoking is a highly efficient drug delivery method. Inhaled nicotine enters the bloodstream quickly through the lungs and

travels to the brain in a matter of seconds. Rapid absorption and entrance into the brain produce a significant "rush" that reinforces the drug's effects [Figure 1].

## OBSERVATIONS AND RESULTS

In *Ayurveda*, addiction is mentioned under the "*Madatyaya*" chapter, which is about alcohol dependence.<sup>[9-11]</sup> There is no description of the tobacco plant (*Nicotiana tabacum* Linn.) found in *Brihatrayees*, and it is described very briefly in *Bhavprakash Nighantu*. It is warned that its leaves are addictive and dangerous to health except slight useful in toothache and for hot fomentation to reduce pain and swelling.<sup>[12]</sup> Tobacco is pungent, astringent, and irritant in nature. They cause acidity, ulcer, headache, cramps, weakness, and body ache.<sup>[13]</sup> Slowly they block personal, economic, and social development. An addicted person engages in a vicious cycle of physical and mental health hazards and may adopt antisocial behavior.<sup>[14]</sup> Due to the overconsumption of various products containing nicotine such as Tobacco, Gutkha, Kharrha, Khaini, Masala Supari, Jarda, Hookah, Bidi, and Cigarette, people may develop many symptoms. At first, difficulty in deglutition, lockjaw trouble in mouth opening, change in voice, and so on, but pain is totally absent, hence most of the times, these features get neglected.<sup>[15]</sup> Due to its abuse, white patch

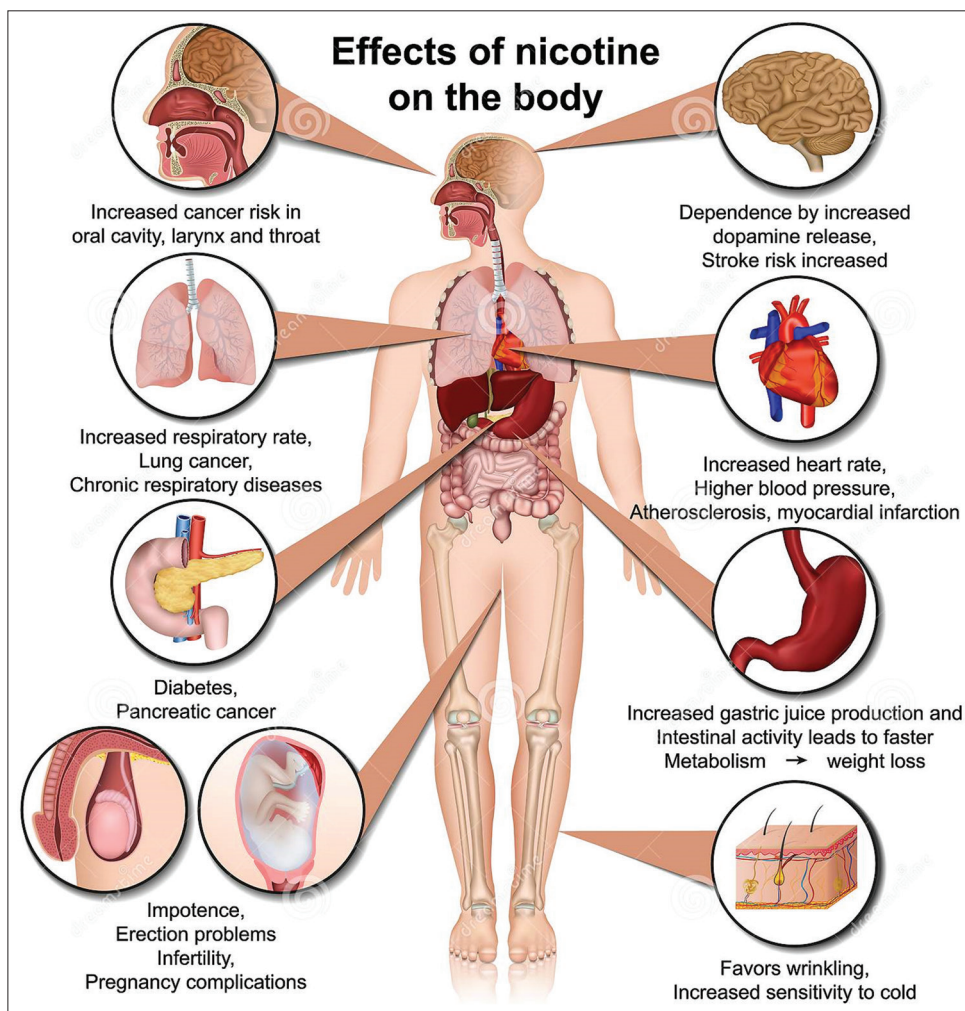


Figure 1: How does nicotine work in the body

called as leukoplakia or submucous fibrosis develops. However, if not treated and nicotine products are consumed regularly, then red patch appears called as erythroplakia, which later may turn into blackish one known as melanoplakia. Cancerous, nonhealing ulcer may appear in the maxilla, mandibular region, or chin and oral cavity.<sup>[16]</sup> The harmful effects of smoking extend far beyond the smoker to peripheral public.

**Methods to Quit Nicotine Addiction<sup>[17]</sup>**

1. Nicotine replacement therapy
  - Nicotine transdermal patch systems.
  - Nicotine nasal spray
  - Nicotine delivery to the oral mucosa, common to NRT products include dizziness, nausea and headache
2. Non nicotine therapies (Medication)
  - Bupropion (Zyban), GalaxoSmitKline
  - Varenicline, Pfizer
  - Nortriptyline
  - Clonidine
3. Novel therapies
  - Anti-smoking vaccine(Nic Vax)
  - Green smoke electronic cigarette
4. Behavioral Treatment
5. Diet
6. Activity
7. Hypnosis
8. Acupuncture
9. Motivational Therapies.

**Role of Ayurveda Treatment Principles**

*Nidana*

*Pragyaparadha* (intellectual blasphemy) which is the major reason.

*Chikitsa*

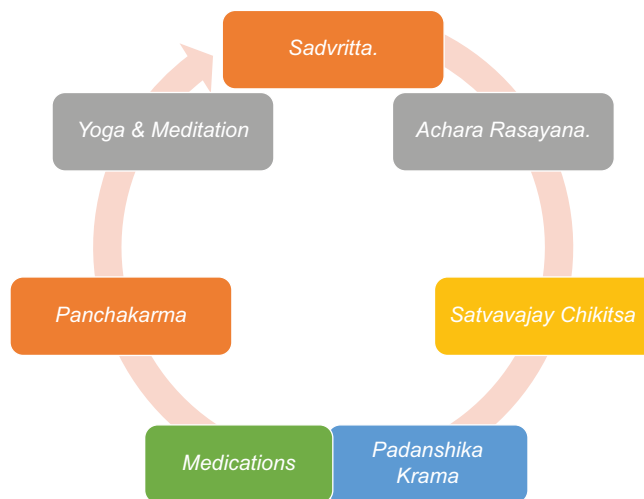
- a. *Sadvritta*
- b. *Achara Rasayana*
- c. *Satvavajay Chikitsa* (play an important role to prevent *Pragyaparadha*), Adoption of *Ayurveda* lifestyle (daily and seasonal regimen)
- d. *Padanshika Krama*
- e. Medications
- f. *Panchakarma* (body purification) by (five major procedures of detoxification)
- g. *Yoga and Meditation*. (As replacement therapy based on withdrawal) [Figure 2].

*Sadvritta*

In Ayurveda, simple moral principles and the right conducts under the heading "*Sadvritta*."<sup>[18]</sup>

*Achara rasayana*

*Achara* means behavior and *Rasayana* means rejuvenation, results in rejuvenation of body and mind,<sup>[19]</sup> following these measures one can prevent addiction problems remarkably. It is the need of the hour to



**Figure 2 :** Ayurvedic methods to quit Nicotine Addiction

**Table 1:** Symptoms of nicotine addiction

S.No	Symptoms
1	Tolerance to nicotine with decreased effect and increasing dose to obtain same effect
2	Withdrawal symptoms after cessation
3	Smoking more than usual
4	Persistent desire to smoke despite efforts to decrease intake
5	Extensive time spent smoking or purchasing tobacco
6	Postponing work, social or recreational events in order to smoke
7	Continuing to smoke despite health hazards

**Table 2:** Physical status examination of Nicotene addiction as well as withdrawl

S.No	Physical status examination
1	Physical effects of nicotine use include increased heart rate, accelerated blood pressure and weight loss
2	Physical effects of nicotine withdrawal and smoking cessation include weight gain due to increase in appetite, decrease heart rate, and improvement in the sense of taste and smell
3	Patient commonly discloses the odor of smoke, tar-stained teeth and premature skin aging
4	Symptoms of nicotine toxicity, other ways known as acute nicotine poisoning, include nausea, vomiting, salivation. pallor, abdominal pain, diarrhea, and cold sweat

**Table 3:** Mental status examination

S.No	Mental status examination
1	Nicotine may enhance an individual's level of alertness
2	Tobacco abuse and dependence may stimulate a frantic almost manic picture
3	The speech may also be accelerated in line with the behavior
4	Tobacco use can contribute to irritability often smoothened by a dose of nicotine

explore the role of *Ayurveda* in present context. According to *Ayurveda*, body and mind are same entity and directs their interrelationship, therefore diseases may affect vice versa to each other.<sup>[20]</sup>

**Table 4:** The replacement of drugs and tapering method

S. No	Addicted drug	Drugs of withdrawal/replacement	Day	Method of withdrawal/replacement	Period
1.	Tobacco	Tobacco+Ajowan Churna	D1- D4 D5- D8 D9-D12 D12-D16 D17	Tobacco-4 mg+Ajowan-2 g Tobacco-3 mg+Ajowan-2 g Tobacco-2 mg+Ajowan-2 g Tobacco-1 mg+Ajowan-2 g Ajowan-2 g	>2 week

**Table 5:** Researches depicting the effect of Ayurveda herbal drugs and formulations on de-addiction

S. No.	Name of herb/formulation	Action	Reference
1	<i>Mandukparni-Centella asiatica</i> Linn.	Neuroprotective, brain growth booster, proven memory, learning enhancer, boost neurodevelopment, stimulant effect on animal as well as clinical study	[25]
2	<i>Bramhi-Bacopa monnieri</i> Linn	Memory enhancement, cognitive function	[26]
3	<i>Shankhpushpi-Convolvulus pluricaulis</i> Choisy	Nervine tonic, stimulant to nervous system	[26]
4	<i>Guduchi-Tinospora cordifolia</i> Wild Miers	Antioxidant, nervine cum general tonic	[27]
5	<i>Ashwagandha-Withania somnifera</i> Linn	Anti-stress, anti-anxiety, antioxidant	[28]
6	<i>Jyotishmati-Celastrus paniculatus</i> Choisy	Inhibition of acetyl choline	[29]
7	<i>Sarpagandha-Raulfia serpentina</i> Linn.	Neurostimulant, antihypertensive	[30]
8	<i>Jaharmohra</i>	<i>Pittashamaka Hridya, Vishaghna, Sheeta</i>	[31]
9	<i>Hingwashtak Churna</i>	Digestive, appetizer, mild laxative, and Vatahar	[32]
10	<i>Agnitundirasa Yograjguggulu</i>	Dipan-Pachan-Anuloman, Shothahar Digestive fire is an important factor for any pathology	[33]

**Table 6:** Action of pre-panchakarma and panchakarma procedures on addicted person for de-addiction

S. No.	Name of procedures	Action	Reference
1	<i>Abhyanga</i>	Eliminates toxins and mental exhaustion, purifying and rejuvenating effect, balances <i>Doshas</i> /humors	[34]
2	<i>Shirodhara</i>	Feel calm, pleasant, and energetic. Vasodilatation, tranquilizing effect due to increase in brain circulation, cognition, improved memory and sleep, relieves irritability, and stress	[35]
3	<i>Nasya</i>	Neuroprotective, stimulant effect to nervous system	[36]
4	<i>Basti</i>	<i>Basti</i> pacifies the <i>Tridosha</i> and helps to increase Bala, also acts as <i>Rasayana</i> (rejuvenating) and to enhance the immunity	[37]

### Role of change in lifestyle (*Satvavajaya chikitsa*)

*Acharya Charaka* suggested few measures to overcome the dependence such as inculcation of morals, habit of doing meditation, taking nutritious diet, and adopting *Pranayama*. According to him, body purification, good friend circle or peers, loving and caring ambiance, and change of job, which reminds addiction, with strong will power are also helpful to get rid from the dependence of nicotine products.<sup>[21]</sup> It is non-pharmacological *Ayurveda* psychotherapy, which includes counseling, *Pathya* (diet) therapy, and controlled use of objects.<sup>[22,23]</sup> It can be used in today's practice with judicious way at home by an expert.

### Padanshika krama

*Charaka* has advised to adopt *Padanshika Krama*,<sup>[24]</sup> which means small quantity should be reduced to avoid strong withdrawal symptoms (Table 4).

### Medication

Tobacco usage results in nicotine tar, and other harmful chemicals being deposited in tissues. It is critical to eliminate such hazardous toxins from the body (Table 5).

### Panchakarma (Body purification)

The Panchakarma measures are also help to eliminate toxins from the body (Table 6).

### Yoga and meditation

*Yoga* is a form of relaxation and exercise that combines stretching, meditation, and knowledge of the body's full potential (Mishra, 2004). It relieves anxiety and stress while also increasing strength and vitality without the use of cigarettes. Furthermore, for a regular smoker, twice-daily meditation can produce astonishing advantages in terms of mental and spiritual refreshment.

- *Neti-Kriya* (Sinus cleaning): has been performed for its physical, psychological, and spiritual advantages
- *Anuloma- Viloma Pranayam* (Breathing Exercise): *Pranayama*, most commonly known as deep breathing exercises and *Anuloma Viloma Pranayama* we perform deep breath in and out without any sound. It helps to balance and calm the mind, increasing mental clarity and alertness
- *Savasana* (Relaxation) - Yogic relaxation by *Savasana* along with auto suggestion (tensing, then relaxing, each part of the body progressively from toes to head) are useful in reducing mental tension and anxiety
- Meditation- Presently many meditation techniques are being

practiced. Most popular form of this meditation is “transcendental meditation,” and it is generally done by focusing the mind on some *Mantra* (sound) to achieve transcendental state of consciousness. There are some common measures or strategies which have to be adapted to calm down the specific symptoms so such types of measures have to be advised to patients.

## DISCUSSION

According to *Ayurveda*, any *Dravya* (medicine) if taken in proper amount they act as a nectar otherwise poison. Adoption of *Ayurveda* principles with medicated alcohol in *Padanshik* (reduced tapering quantity) may help by keeping away agitation, anxiety, irritability, anger, and so on, to facilitate good conduct in daily life along with counselling, entertainment, and music. However, separate evaluation of these concepts is needed to establish their role in maintaining mental health and in de-addiction. *Charaka* has emphasized on the benefits of nonaddicted person instead of addicted as later addiction creates *Ojonasha* (destruction of tissue essence). For de-addiction, parent's support is always needed to prevent doing *Pragyaparadha* again, due to maintain strong will power also, family and friends support is essential to distract from addiction. Table 1 shows the replacement of drugs and tapering method of *Ayurveda* principles with characteristics. Likewise, many herbs are crucial in de-addiction of nicotine and alcohol, with their mode of action. As single herbs, combination of herbs, which is called as *Kalpa*, is also helpful in quitting addiction as mentioned in Table 2. Addiction creates many toxins and free radicals in the body with its increasing dose, hence requires timely elimination of these toxins to keep body free from its complications. *Panchkarma* is very useful for bio-purification and detoxification of body, which also indirectly keep mental health problems at bay, as depicted in Table 3. For long-term use of *Ayurveda* medicines, procedures, *Yoga*, *Pranayama*, and counselling have an effective role in de-addiction of toxic drugs such as nicotine. It is the need of the hour to say “no” to these toxic drugs and “yes” to life, hence efforts should be made by all to stop consumption and stay healthy. Community, psychiatrists, psychologists, various health providers of all pathies, different organizations, and government should take part to help de-addict an individual, willing to quit, and make India free from psychotropic drug dependence.

## CONCLUSION

It's important to keep in mind that nicotine or tobacco addiction is a chronic illness that should be treated as such. Treatment may necessitate ongoing efforts to aid tobacco users in their attempts to quit. Relapse should be considered a possibility. The percentage of smokers who can quit for at least one week without treatment is 25–51%, while the percentage of smokers who can quit for at least three months is 10–20%. Only 3–5% of people have achieved long-term abstinence after 6 months (150). These outcomes can be improved with treatment. Although, it will be challenging, quitting smoking is not impossible. *Padansika Krama* is a unique strategy for preventing hazardous chemicals like nicotine from being abruptly removed from the body. In a taper-up method, detoxification should be accomplished by substituting therapeutic drugs or the same substance. With adequate awareness, education, counselling, and herbal treatment, tobacco use can be reduced or discontinued completely. *Ayurveda*, an ancient medical science, could be able to assist with this pressing issue. *Yoga* or other

physical exercises, such as meditation, can be used to help people quit smoking. In addition, *Ayurvedic* herbal formulations in the form of dietary supplements or prescriptions can aid in reducing the harmful effects of tobacco use.

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