

Review

# Aromatherapy and Quitting Smoking

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## Abstract

Today, the treatment approaches recommended for smoking cessation are pharmacological and behavioral therapy. Both approaches are reported to be effective alone; however, when used together, the success rate increases. Modern medicine methods, however, often have a negative image due to cost, complexity and limitations in human life. For this reason, complementary and alternative therapies are widely used in the community for the treatment of many diseases in every age group. When people are asked why they prefer complementary and alternative therapies, the most important reason seems to be to improve quality of life by providing symptom control. Other reasons include economic problems, the lack of health insurance, the improvement of quality of life, the influence of the media and the environment, a strong belief that it will help, disappointment of conventional treatment failure, the noninvasiveness of most complementary and alternative therapies, fear of medical treatments, dissatisfaction with the current health system, medicines. Avoiding side effects can be called as a desire to have more control over health decisions. Contrary to many pharmacological and behavioral treatments that investigate the effectiveness of smoking cessation, only a few studies have included complementary and alternative treatments. Complementary treatment methods such as aromatherapy are thought to be regularly included in smoking cessation programs and their use should be ensured/expanded.

## Keywords

aromatherapy; essential oil; nicotine craving

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## Introduction

The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 8 million people a year around the world. More than 7 million of those deaths are the result of direct tobacco use. According to WHO Global Report data, as of 2012, smoking causes more deaths than the sum of deaths caused by malaria, HIV/AIDS and tuberculosis [1, 2].

Pharmacotherapy and supportive therapy are two effective approaches to smoking cessation. In order to obtain a more effective result, both methods must be applied together [3]. There are many pharmacological agents with proven efficacy in smoking cessation [4]. US Food and Drug Administration

(FDA) -approved medications used for smoking cessation include nicotine replacement therapy (NRT), transdermal patch, nicotine gum, nicotine nasal spray, nicotine inhaler and lozenges [5], and bupropion and varenicline. Nortriptyline and clonidine, though not approved by the FDA, are clinically effective in smoking cessation [6]. The first-line medications for smoking cessation are NRT and sustained-release (SR) bupropion. Other medications used as second-line treatment are clonidine, nortriptyline and varenicline.

Using the necessary medicines to help you quit smoking almost doubles your chance of quitting. However, 50-80% of those who try to quit smoking prefer not to use any drugs. Smokers can avoid using drugs due to their side effects, contraindica-

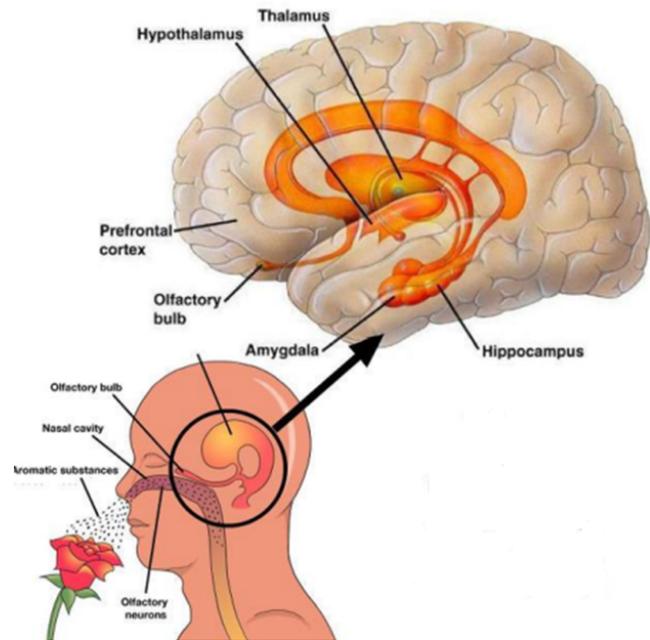
tions based on personal health histories, pharmacotherapy costs, and desires for a chemical-free quitting experience. Therefore, the limited success of current smoking cessation treatments encourages research towards new treatment strategies.

Over the past decade, interest in the use of traditional and complementary medicine to quit smoking has increased worldwide [7]. In a study, a significant percentage (27%) of smokers showed that they used traditional and complementary medicine in addition to pharmacological treatment. In addition, 67% of smokers who wanted to receive treatment reported they wanted to use traditional and complementary medicine practices such as yoga, meditation or massage to help reduce stress and quit smoking [8]. Practices such as yoga, meditation, and acupuncture can help the smoking cessation process and become an alternative drug-free treatment option, while aromatherapy has become one of the methods used in recent years as essential oils are cheaper and easily accessible by the person [9, 10, 11, 12].

## 1. Work and Mechanism of Aromatherapy

The National Association for Holistic Aromatherapy (NAHA) defines aromatherapy as essential oils derived from the extracts of plants to improve and balance body, soul and mental health. The focus of aromatherapy is symptom control [13]. The application of aromatherapy in the right way is important to get the right effect. Essential oils can be applied in four different ways: oral, internal, topical and inhalation [14]. The aromatherapy effect is thought to occur via the scent tractus olfactorius through the limbic system and the connections extending to the hypothalamus. The only sensation that goes directly to the cerebral cortex is the sense of smell, while other senses are relayed through the thalamus [15].

In the human olfactory system, the odorant receptors are localized on olfactory sensory neurons. During inhalation, odor molecules travel through the nose and affect the brain through a variety of receptor sites, one of which is the limbic system. The limbic system is directly connected to those



**Figure 1.** Absorption of essential oils through the nose.

parts of the brain that control heart rate, blood pressure, breathing, memory, stress levels, and hormone balance (Fig. 1) [16].

The two most important parts that process flavor in the limbic system are amygdala and hippocampus [17]. The amygdala is thought to affect behaviors such as fear and aggression. For example, lavender is known to reduce the effect of external emotional stimuli by increasing the diazepam-like effect by increasing inhibitory neurons in the amygdala containing gamma-aminobutyric acid [13, 17]. The hippocampus is where the smell memory is triggered [13]. A person who has received food that he/she did not like before may feel his/her stomach blurred even by smelling the same food for the second time [18]. The limbic system takes most emotional inputs and delivers them to the voluntary and involuntary motor centers. Gatti and Cajola (1923) stated that odors affect the central nervous system or reflex system and affect respiration, pulse and blood pressure [13].

Odor receptors adapt about 50% in the first seconds after their stimulation. Subsequent adaptation is much slower. The central nervous system is thought to develop an increasingly severe feed-

back inhibition to suppress the transmission of odor signals in the olfactory bulb after the onset of odor warning [19]. When aromatic plants are applied by inhalation, molecules reach the nose and the limbic system in the brain. The limbic system is the innermost complex set of the brain structures under the cerebral cortex. Among these regions, the amygdala and hippocampus are very important in the aroma process. The amygdala regulates the emotional response. The fragrance memory is located in the hippocampus and the chemicals of relaxing aromas that have been already learnt are located in this area. After the smell is transmitted to this area, it is perceived as a pleasant or unpleasant one according to previous experience [19, 20].

## **2. Effect of Aromatherapy on Smoking**

In studies investigating the effect of aromatherapy on smoking, lavender, bergamot, black pepper, angelica and ylang-ylang oil were usually used; however, the most preferred essential oils were black pepper and angelica oil. [21, 22, 23, 24].

Sayette M. and Parrott D. (1999) investigated the idea that an olfactory stimulus might reduce craving for nicotine. They found that both negative and positive aromas reduced cravings against a non-odoriferous control in nicotine addiction [25]. DaCosta R. (1999) explored the inhalation of essential oil as a means to reduce the craving for nicotine withdrawal. Lavender, *Helicrysum italicum*, and *Angelica archangelica* were tested. Angelica oil was found to be the most helpful, with subjects able to wait before having a cigarette [26].

Rose J. and Behm F. (1994) found that the vapor of black pepper essential oil, when inhaled, partially reproduced the respiratory tract sensations experienced when smoking, therefore reducing the craving for cigarette [27].

Newsham G. (2001) explored the effect of aromatherapy as an adjunct to auricular acupuncture for drug detoxification. Twenty drops of lavender were placed in the nebulizer. However, the results showed no difference in the cravings [28].

Caldwell N. (2001) explored the effects of ylang-

ylang in a small controlled study of 10 women suffering from cravings following withdrawal of substance abuse. One group was given ylang-ylang essential and the other one (the control group) received plain almond oil to inhale. The results showed that the number of cravings in the essential oil group decreased more than in the control group [29].

Cordell B. and Buckle J. (2013) explored the effect of two inhaled essential oils (black pepper or angelica) on the nicotine habits. One group received angelica and one group received black pepper. Both groups inhaled the essential oil for 2 minutes when they felt the urge to smoke or use tobacco (nicotine products). They found angelica and black pepper were both effective in reducing nicotine craving and increasing the time before the next nicotine use. Black pepper was more successful in reducing cravings, and angelica produced greater effects in time delay to next use [30].

## **3. Healthcare Professional Responsibilities in Aromatherapy Practice**

In aromatherapy applications, there are many important points healthcare professionals should pay attention to. They include the correct method of application, the choice of the appropriate oil, the determination of the frequency and duration of a session, the observation of changes in the patient and the disclosure of the results, the direction of the individuals to the right practices and the provision of effective consultancy services [31]. Essential oils used in research should have a certificate of analysis and be purchased from reliable companies. Written consent should be obtained from the patients before the application. The patient's diagnosis, the presence of symptoms such as pain, depression, fatigue, the degree of inflammation, the wound healing process, the properties of essential oils, the patient's preference, experience and intuition should be taken into account when selecting essential oils [32, 33]. It is very important not to expose the oil used during application to sunlight and to prevent contact with the eyes. Some oils can cause sensitivity due to allergies, smudging of

the skin or odors. Allergy testing should be done before using oils. They should be diluted while being massaged and used in a safe and correct dosage range. Special care should be taken when using essential oils in elderly patients, those with asthma and epilepsy. Long-term daily use of oils can cause undesirable effects on the liver and kidneys. Therefore, it is needed to avoid aromatherapy sessions for a certain time to restore the body. A maximum of five oils should be used in the oil mixture. The use of excess oils makes it difficult to control undesirable effects. As essential oils are volatile, the cap should be closed tightly after application and they should be stored under appropriate conditions [33, 34].

### Conflict of Interest

The authors stated no conflict of interest.

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**Received:** 2020-03-02

**Revised:** 2020-04-28

**Accepted:** 2020-05-12