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## Aromatherapy on Mental Health



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### ABSTRACT

Aromatherapy deals with the utilization of naturally extracted aromatic essences from plants to harmonize, balance and promote the overall health of mind, body, and spirit. The aromatic practice emphasizes the use of essential oils for inhalation which is related to the alliance between our emotions and sense of smell. Aromatherapy is one of the medicinal practices of CAM therapy. Aromatherapy being simple, non-toxic, easily available, affordable is used preferentially. On the contrary, it has certain disadvantages such as allergies as well as toxicity (exceptionally). It is also contraindicated during pregnancy. Aromatherapy is a holistic medicinal system. The term "Aromatherapy" was coined by a French chemist and perfumer, Rene-Maurice Gattefosse in 1937. Different essential oils are used to relieve stress caused due to different factors which also affect various parts of human body. Researchers are not entirely sure how aromatherapy and essential oils are used in aromatherapy treatment. Different theories have been proposed to explain the reported effects of aromatherapy. Chemicals in essential oils might stimulate olfactory receptors in our nose, which send a message to the part of our brain that controls our mood. Essential oils are absorbed by four main routes such as olfactory, topical, internal and oral. Each method or route of absorption has its own physiologic process. After all the metabolic processes, essential oils are excreted through the kidneys, lungs, and skin. Essential oils can be used to treat different emotional states such as anger, grief, fear, anxiety. Aromatherapy can also be used to enhance confidence and concentration.

## **INTRODUCTION:**

Aromatherapy is a branch of the alternative system of medicine which deals with the utilization of naturally extracted aromatic essences from plants to harmonize, balance and promotes the overall health of mind, body, and spirit. It unifies the physiological, psychological and spiritual processes to enhance the innate healing process of an individual.<sup>(3)</sup>

Aromatherapy is considered to be a wellness tradition practiced all over the world, which is beneficial for the mind, body, and spirit. The aromatic practice emphasizes the use of essential oils for inhalation which is related to the alliance between our emotions and sense of smell.<sup>(6)</sup>

The aromatherapy tends to heal the body by stimulating its natural powers. The awakening of these forces results in returning to the body from a diseased state to a healthy state. Aromatherapy differs from allopathy in its manner to treat the disease. Instead of treating the disease, aromatherapy tends to treat the entire person. Aromatherapy raises the levels of resistance and immunity of our body and prevents the disease. It is found that the effects of stress can be counteracted most effectively by aromatherapy. An enormous flow has been observed in the engrossment of alternative systems of medicines over the last 10 years. As per the research and surveys, it is found that most people are convinced with the use of alternative medicinal systems such as aromatherapy. A broad range of alternative medicines is now stocked by many food shops and chemists.<sup>(7)</sup>

### **History and origin:**

The word "Aromatherapy" was not much used before 1928. The use of waters, oils, incense, resins, and ointments scented with botanicals has been done by the ancient Egyptians for their religious ceremonies. The use of fragrances by the Romans was very well known. The Romans used to bath with the botanicals and unified them into their state and religious rituals. The Greeks had also played a major role in the development of aromatherapy. The well-known herbal text *De Materia Medica* written by a Greek physician and surgeon Pedanius Dioscorides which includes detailed information about medicinal uses of plant and contains an entire section on aromatics.<sup>(5)</sup>

The term “aromatherapy” was coined by a French chemist and perfumer, Rene-Maurice Gattefosse in 1937.<sup>(3)</sup>

Generally, Aromatherapy can also be used along with massage therapy, acupuncture, reflexology, herbology, chiropractic, and other holistic treatments.<sup>(1)</sup>

#### **Lascaux 18000 BC:**

The paintings indicating the medicinal uses of the plant have been found in the caves of Lascaux which are located in the Dordogne region of France. Earlier as the man was solely dependent upon his instincts, aromatic plants were used widely not only to cure the disease but also to preserve the food and to assist digestion.<sup>(7)</sup>

#### **Egypt 4500 BC:**

A compound named “Kyphi” was formulated by Egyptian perfumes which were used as a perfume as well as an incense and medicine. In the Egyptian era, perfumery had a close impact on religion. The scented oils were applied to the statues of gods and goddesses. Mummifying was the expertise of the Egyptians which emphasizes the use of special formulations of aromatics for the preservation of the flesh.<sup>(7)</sup>

#### **India 3000 BC:**

“Ayurveda” the traditional medicinal system of India prominently uses essential oils, massage and pressure point to recover the body and to improve the health.<sup>(7)</sup> The “Snehan” therapy which is a part of the “Panchakarma” of Ayurveda treats the body by means of applying essential oils to the body and massaging.

#### **China 3000 BC:**

The ancient medical text in China was the Emperor Shen Nung’s herbal book. It is considered to be as old as 2700 BC. Another Emperor Huang Ti wrote “The Yellow Emperors Classic of Internal Medicines.” Which emphasized on the use of massage, aromatic medicines and acupuncture.<sup>(7)</sup>

### **Greece 400-500 BC:**

The effects of 300 plants and the day to day use of aromatic baths and medicines were recommended by the Greek physician Hippocrates (469 – 399 BC).<sup>(7,8)</sup> It was recognized by Greeks that the fragrance of flowers was able to boost or relax the mood.<sup>(8)</sup>

### **Rome 50 AD:**

The use of essential oil for massage and aromatic oil for bathing purpose gained tremendous importance in the Roman era.<sup>(7,8)</sup> A headache and dyspepsia problems of Emperor Nero were recuperated by Rose oil<sup>(8)</sup>. The well-known herbal text “De Materia Medica” having around 500 plants’ information was written by Greek physician and surgeon Pedanius Dioscorides in the first century AD.<sup>(5,7)</sup>

### **Arabia 900 AD:**

The well-known text ‘Canon of Medicine’ was written by the great Arab physician Avicenna (AD 980 – 1037) whose original name was ‘Abu Ali Ibn Sina’.<sup>(7,8)</sup> He played an important part in the development of aromatherapy by inventing the steam-distillation process. The use of white and red roses was emphasized in his research. It is considered that the production of attar of roses took place in Persia during his lifespan.<sup>(8)</sup>

### **Seventeenth to Nineteenth Century:**

The renowned herbal text 'Complete Herbal' was written by an English botanist and herbalist Nicolas Culpepper in 1653. The eighteenth century is known particularly for the use of essential oils by herbalists as well as by doctors. The Nineteenth century led to the identification of the active constituents of essential oil as well as to the progressive production of synthetic oils which resulted in the abatement of natural medicines.<sup>(7)</sup>

### **Twentieth Century:**

The term “aromatherapy” was coined by a French chemist and perfumer, Rene- Maurice Gattefosse in 1937.<sup>(3)</sup> His hand was burnt accidentally during his research and unknowingly he immersed his hand in the nearest container of oil which contained lavender oil. He observed that the oil mitigated the pain and cured the burns quickly without any scars. He treated the wounds of soldiers with essential oils during the First World War.

Many people consider the 'Practice of Aromatherapy' a renowned text was written by Dr. Jean Valnet as the 'Bible of Aromatherapy'. It was published in 1964.<sup>(7)</sup>

During the Second World War, a French biochemist Marguerite Maury (1895-1968) combined the aromatherapy with other natural treatments and cosmetic products.<sup>(8)</sup>

### Essential Oils:

According to Aristotle four elements i.e. fire, air, earth, and water comprise matter and the fifth element or quintessence was supposed to be spirit or life force. The term essential oil was derived from the original "quintessential oil." The methods of removing the spirit from the plant were known to be distillation and evaporation.<sup>(4)</sup>

Different essential oils have different types of properties. The required one should be selected according to the expected therapeutic properties required. The various emotional states can be handled by using essential oils.<sup>(2)</sup>

### Emotional states and essential oils :<sup>(2)</sup>

Sr.No.	Emotional state	Essential oils used
1.	<b>Anger</b>	<ul style="list-style-type: none"> <li>➤ Anger is an emotional state of the body which is not useful for the body by any means.</li> <li>➤ It affects the overall health of the body as well as the mind.</li> <li>➤ Various essential oils such as Bergamot, Jasmine, Neroli, and Orange can be used to lower down the anger.</li> </ul>
2.	<b>Fear</b>	<ul style="list-style-type: none"> <li>➤ Fear is an emotional state of body which sometimes restrict yourself for facing difficult situations.</li> <li>➤ The Roman Chamomile oil can be used for its soothing and sedative effect.</li> <li>➤ Essential oils such as Bergamot, Clary Sage and Grapefruit oils can be used to treat fear.</li> </ul>
3.	<b>Grief</b>	<ul style="list-style-type: none"> <li>➤ Grief is nothing but the depressed state of the body.</li> <li>➤ Frankincense essential oil can be used to enhance the spirit.</li> <li>➤ Various oils such as Geranium, Helichrysum, and Lavender can be used to relieve depression.</li> </ul>
4.	<b>Anxiety</b>	<ul style="list-style-type: none"> <li>➤ Anxiousness is an emotional state of body which restricts you from focusing.</li> </ul>

		<ul style="list-style-type: none"> <li>➤ An individual often worries about something or the other under anxious condition.</li> <li>➤ Clary Sage, Patchouli, and Bergamot can be used to treat the anxiousness as well as to help you focus.</li> <li>➤ Patchouli oil can specifically be used as an aphrodisiac as well as to calm and relax the mind.</li> </ul>
5.	<b>Confidence</b>	<ul style="list-style-type: none"> <li>➤ Confidence is an emotional state of body which improves your personality.</li> <li>➤ Bay Laurel oil can be used to boost the confidence.</li> <li>➤ Cypress oil, as well as Rosemary oil, can be used to make an individual feel confident.</li> </ul>
6.	<b>Memory And Concentration</b>	<ul style="list-style-type: none"> <li>➤ Essential oils have a direct impact on the memory and concentration of an individual.</li> <li>➤ The mind can be triggered as well as can be kept focused on the use of Basil essential oil.</li> <li>➤ The mind can also be stimulated by the use of various essential oils such as Cypress and Peppermint.</li> </ul>

### Working and Mechanism of Aromatherapy:

- **Stress :**

There are two types of stress, viz., Good stress(Eustress) and Bad stress(Distress). Different essential oils are used to relieve stress of both types.<sup>(16)</sup>

### How stress caused?

Stress can be caused by various factors such as -

- a) **Environmental** stress caused by the noise of machinery on the factory floor, or the constant ringing of telephones, or overcrowding, etc.<sup>(9)</sup>
- b) **Chemical** stress caused by too much coffee or junk food, pollution, or second-hand smoke, etc.<sup>(9)</sup>
- c) **Physical** stress caused by pushing your body to the limits, working out at the gym or driving long distances continually, etc.<sup>(9)</sup>

d) **Mental** stress caused by constant worries over finances, unemployment, exams, etc.<sup>(9)</sup>

e) **Emotional** stress caused by relationship problems, parental guilt, grief, etc.<sup>(9)</sup>

### **How stress affects health issues?**

There are three stages, such as –

#### **Stage I:**

It occurs when the body is initially exposed to a stressor:

a) the digestive juices stop flowing

b) increase in heart rate and respiration

c) Transfer of extra oxygen to brain and muscles (in preparation for fight or flight)

d) energy is released quickly from stored fats and sugars, extra adrenaline is produced

f) the immune system shuts down.

When this is a temporary situation the body is able to rid itself of the stress and the body keeps trying to reach a balanced state.<sup>(9)</sup>

#### **Stage II:**

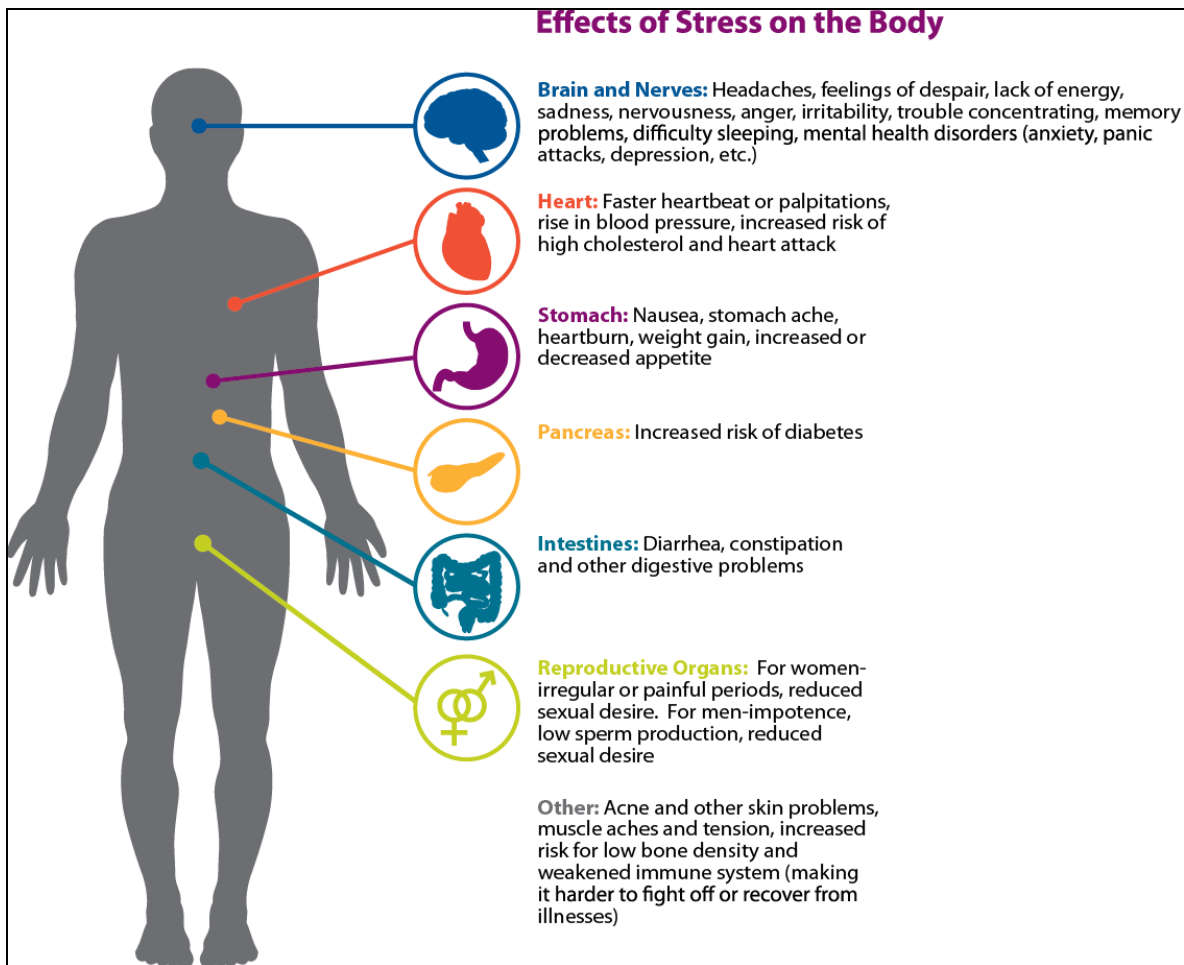
When the level of stress is prolonged over a longer period of time it becomes chronic and this stage has been reached.<sup>(9)</sup>

#### **Stage III:**

This degree of stress leads to exhaustion results in health problems. These problems may manifest themselves in many different ways including headaches, insomnia, digestive problems, skin disorders, and susceptibility to infections due to the immune system being so low. Some people may show signs of being critical, restless, inefficient, withdrawn or moody. The danger signals need to be recognized and a natural method of combating them needs to be implemented in order to avoid severe consequences.<sup>(9)</sup>

Immune system of person that is constantly stressed, get weak and that allows pathogens to easily enter the body and create all kinds of diseases.<sup>(2)</sup>

Because of all adverse effects, it is very important to avoid stress and keep balance of brain.<sup>(2)</sup>



**Fig.1.1 Effect of Stress on Body** <sup>(26)</sup>

- **Working and Mechanism of Aromatherapy on Mental Health:**

- Researchers are not entirely clear how aromatherapy and essential oils used in aromatherapy works.<sup>(17,13)</sup>

- Although essential oils have been used, there is very little verified science behind this use. The pharmacology of essential oils and/ their single chemical constituents, therefore, remains largely undiscovered.<sup>(10)</sup>

- Different theories have been proposed to explain the reported effects of aromatherapy, although none has been proven scientifically.<sup>(19)</sup>



- It has been suggested that chemicals in essential oils, might stimulate smell receptors in your nose that send message to the part of your brain that controls your mood.<sup>(13)</sup>
- However, accumulating evidence that inhaled or dermally applied essential oils, enter into blood stream and in relevant molecular, cellular and animal models, exert measurable psychological effects, indicates that effects are primarily pharmacological effects.<sup>(10)</sup>
- But effectiveness of essential oils is questioned due to poor qualities of previous studies.<sup>(11)</sup>

- **Actual Working and Mechanism:**

According to experts,

There are four main routes for absorption of essential oils, viz.,

1. Olfaction via sense of smell (Inhalation)
2. Topical – via external skin using massages, baths and compresses
3. Internal – via internal skin using mouthwashes, gargles, douches, suppositories
4. Oral – Using Gelatin capsules or diluted honey, alcohol or depressant.

Each method or route of absorption has its own physiologic process.<sup>(15,18)</sup>

Internal and oral route of absorption is not used for maintaining Mental health. These routes of absorption are important for particular diseases like the infection in mouth cavity and other body orifices and some digestive problems.

- **Mechanism :**

A. Inhalation :

- i. Inhaling essential oils is oldest as well as fastest method of getting essential oils into the body.<sup>(15)</sup>
- ii. When aroma of essential oil passes through our nose, molecules that the oil is made of eventually get into the olfactory bulb where electric impulses are created.<sup>(2,13)</sup>

iii. Olfactory bulb connects to brain structures such as prefrontal cortex, amygdala, entorhinal cortex, striatum, and hippocampus. These play important role in odor recognition and emotional responses.<sup>(15)</sup>

iv. Those impulses are then sent to the Amygdala, the limbic system, and hippocampus which also reacts to it.<sup>(2)</sup>

The limbic system is the oldest part of the brain. In lower vertebrates called smell brain. Main structures in limbic system are amygdala, hippocampus, anterior thalamus, and hypothalamus. Amygdala and hippocampus are most important parts associated with smell.<sup>(15)</sup>

Amygdala is a small mass of nuclei located deep within the temporal lobe of the brain. It is involved in many of our emotions, especially those, that are related to survival. Amygdala is involved in the processing of emotions such as fear, anger and pleasure.<sup>(2)</sup>

v. There are parts of the brain that control heart rate, memory, hormonal balance, and breathing. The limbic system is directly connected to those parts.<sup>(14)</sup> The brain reacts positively with essential oils inhaled. Those molecules of oil can trigger reactions in the brain. Our emotions are affected by reactions in brain.<sup>(2)</sup> The implication is anytime the limbic system reacts based on impulses sent by the olfactory bulb, hormonal balance, heart rate and memory of a person can be altered.<sup>(2)</sup>

vi. One way to stimulate amygdala is through the aroma coming from essential oils. This can revive good memories from our childhood and bring a sense of well-being.<sup>(2)</sup>

vii. This implies that essential oils can have a profound effect on mental state of person and explains why people don't hesitate to use them to restore balance when they are stressed.<sup>(2)</sup>

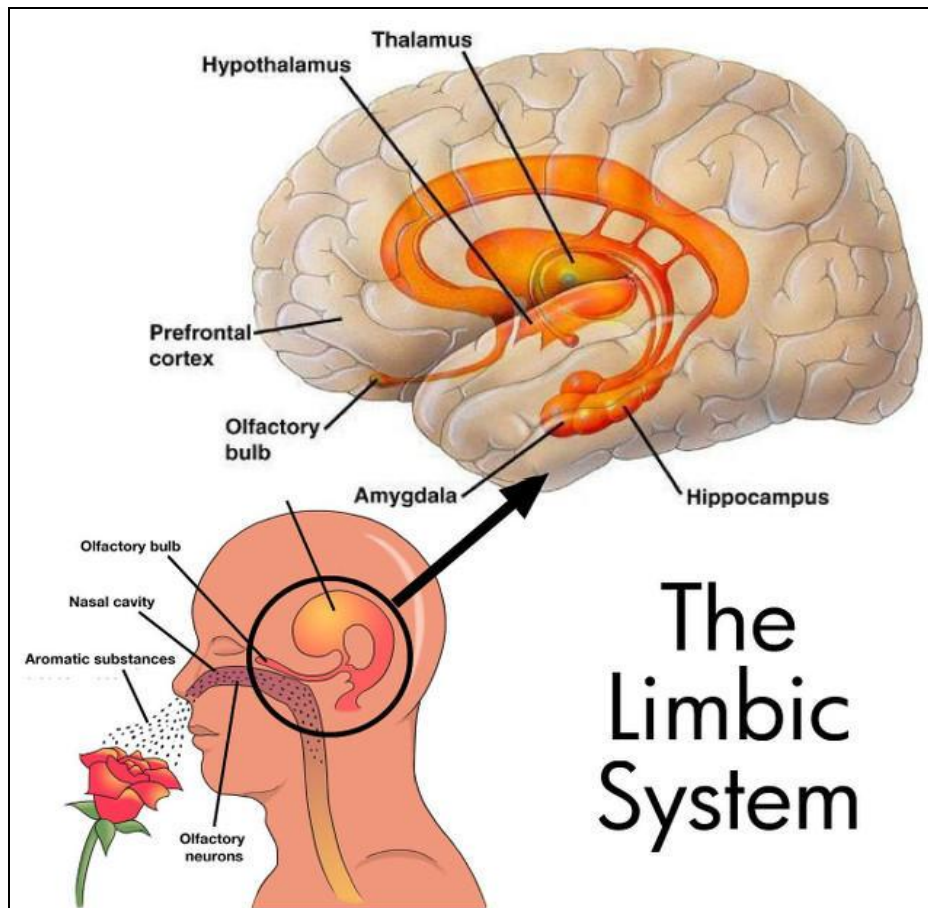


Fig.1.2: How essential oils absorbed through the nose<sup>(27)</sup>

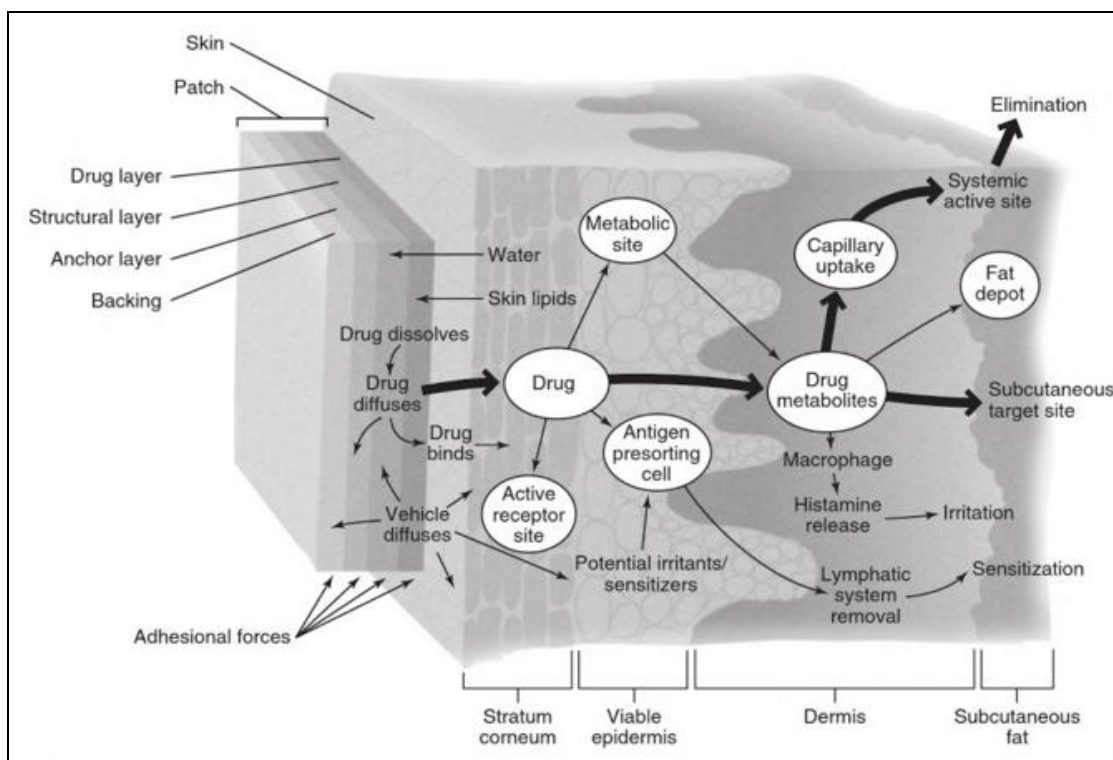
## B. Topical Absorption:

There are two processes involved in topical absorption:

Penetration and Permeation through skin<sup>(15)</sup>

Massage:

Massage is another stress-relieving technique that commonly employs essential oils, incorporating touch and physical manipulation of joints and muscles to relieve tension and stress.<sup>(12)</sup>



**Fig. 1.3: How essential absorbed through the skin<sup>(28)</sup>**

- Some Researchers believe they(EOs) stimulate the activity of brain cells in amygdala similar to the way some medications work.

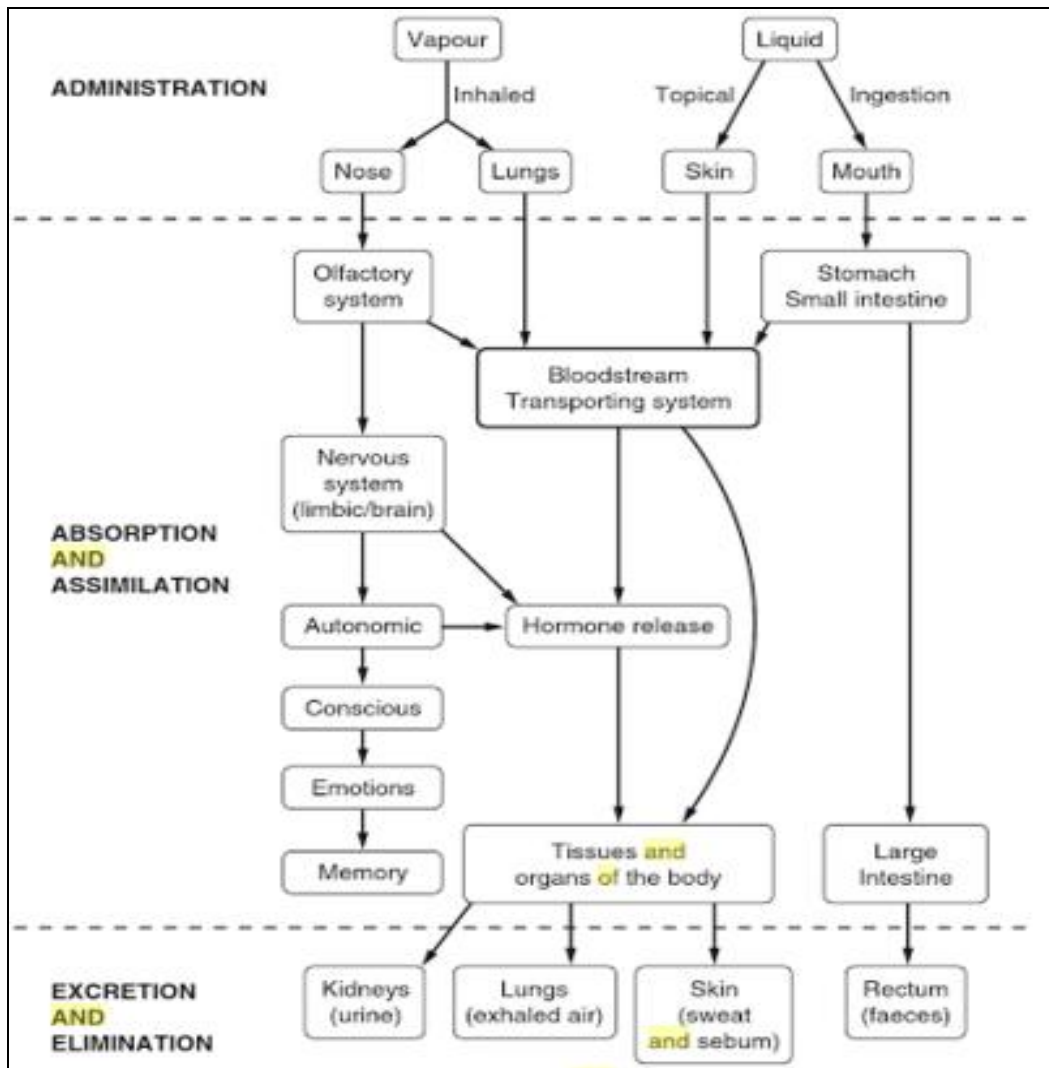
e.g. Scientists believe Lavender stimulates the activity of brain cells in amygdala similar to sedative medications.<sup>(17)</sup>

- Other researchers think that molecules from essential oils may interact in blood hormones and enzymes.<sup>(17)</sup>

- **Excretion of Essential Oils:**

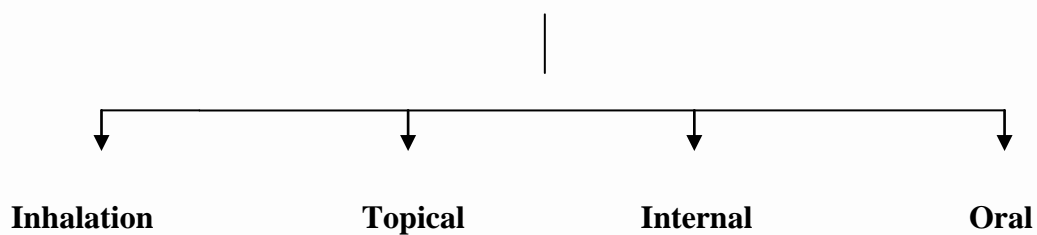
Essential oils are excreted through the kidneys, lungs, and skin. Also, components of essential oils may be excreted through exhaled breath or in the feces. If essential oils are inhaled, it is less likely to be excreted in the urine. There is limited information about excretion of essential oils in human being.<sup>(15)</sup>

- Schematic Representation of the Whole Mechanism of Aromatherapy:<sup>(15)</sup>

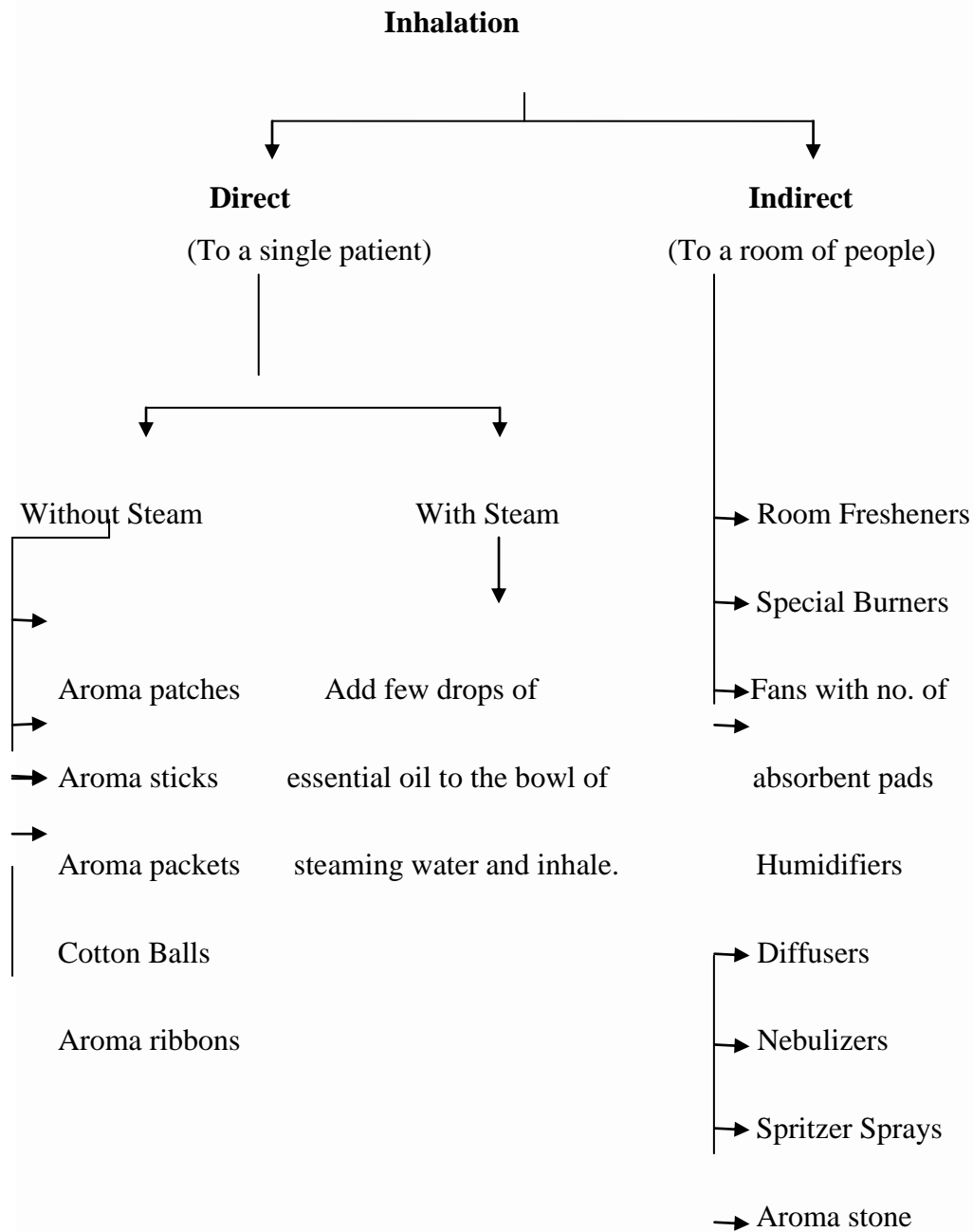


- Methods of Use and Application:<sup>(14,15)</sup>

### Methods of Use



### 1. Inhalation:



### 2. Topical :

In this method of use, essential oils used are diluted up to fixed level and then it applied on the skin with or without rubbing.

### 3. Internal :

- Mouthwashes and gargles
- Vaginal douches, Creams, and Tampons.

### 4. Oral :

- Gelatin Capsules
- Disper
- Honey

Aromatic baths and compression are also used for application of essential oils.

#### • More about Aromatherapy:

Complementary and alternative medicine (CAM) is a group of medicines/medicinal practices used for prevention, diagnosis, mitigation, treatment (of disease) and which assists the conventional system of treatment and enhances the recovery process.<sup>(25)</sup>

Aromatherapy is one of the medicinal practice of CAM therapy.<sup>(25)</sup> In aromatherapy, healing power of essential oils is employed to boost the physical, mental, and emotional health of an individual.<sup>(20,21)</sup>

Aromatherapy has many benefits such as it reduces chronic pain, anxiety, mental stress, etc<sup>(17)</sup>

#### ADVANTAGES OF AROMATHERAPY OVER OTHER METHODS OF TREATMENT:

**1. Simplicity:** It is the easy and inexpensive method of treatment.<sup>(22)</sup> It is a noninvasive type of treatment.<sup>(25)</sup> It is simple and no special professional supervision is needed.<sup>(23)</sup>

**2. Natural and Non-toxic:** Essentials oils with some exceptions are safe and not toxic to humans when either inhaled or applied topically on the skin.<sup>(23)</sup>

**3. Availability:** Essentials oils products used for aromatherapy are readily available because of increasing demand of aromatherapy.<sup>(23)</sup>

**4. Affordability:** Aromatherapy is affordable and economical type of treatment as compared to their types of treatments.<sup>(23,25)</sup>

**5. Essential oils** obtained from crude drugs like fennel, aniseed, clary sage are used to alleviate symptoms of premenstrual syndrome and menopause as these oils contain estrogen-like compounds.<sup>(17)</sup>

**6. Neroli oil** is very much useful for patients undergoing a colonoscopy, as it reduces B.P and pre-procedure anxiety.<sup>(17)</sup>

#### **Disadvantages of Aromatherapy:**

**1. Allergies:** There are some people which are sensitive to certain essential oils.<sup>(20,23)</sup> The symptoms are not severe including mild irritation, redness, etc.<sup>(20)</sup>

**2. Toxicity:** When some essential oils are applied to the skin, skin becomes more sensitive to UV rays and sometimes it results causing deep sunburns. e.g -citrus based essential oils.<sup>(20,23)</sup> Essential oils therapy [aromatherapy] may be unsafe for cancer patients undergoing cancer therapies like chemotherapy or radiation.<sup>(22)</sup>

**3. Other side effects:** While undergoing aromatherapy some people may encounter problems like nausea, headaches, rash, liver and nerve damage, etc.<sup>(20,17)</sup> Some people may also suffer from contact dermatitis. Steam inhalation should be avoided by patients suffering from asthma, as it may cause the disease more severe.<sup>(24)</sup>

**4. Contraindicated during pregnancy:** Essential oils are capable of passing from the mother's body through the placenta to the fetus. So it may harm the fetus.<sup>(21,22,23)</sup>

There are some essentials oils which are potent to function as abortifacients (substances which bring about spontaneous abortion). They are as follows:

**i. Parsley seed**

**ii. Mugwort**

**iii. Sage**

**iv. Cottonwood bark**

**v. Pennyroyal**

**vi. Sassafras**



**vii. Rutin**

**viii. Tansy**

**ix. Wormwood<sup>(23)</sup>**

**5.** Essential oils obtained from fennel, aniseed, clary sage, lavender, tea-tree oils have estrogen-like compounds which have the structure similar to natural estrogen. So, patients suffering from breast or ovarian cancer (estrogen-dependent tumors) should not use these oils.<sup>(20,17)</sup> Small children and children undergoing puberty should avoid these essential oils as it may lead to uncontrolled breast growth in boys.<sup>(20)</sup>

**6. Flammability:** Essential oils may catch fire if used next to open flame as they are volatile in nature.<sup>(23,24,17)</sup>

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