

# Coming to our “Scent”ses with Essential Oils

by Wise Choice Resource Center, INC.

When any scent is inhaled, the odor molecules travel up the nose where they are trapped by olfactory membranes that are protected by the lining inside the nose. Each odor molecule fits like a little puzzle piece into specific receptor cell sites that line a membrane, known as the olfactory epithelium. When stimulated by odor molecules, this lining of nerve cells triggers electrical impulses to the olfactory bulb in the brain. The olfactory bulb then transmits the impulses to the gustatory center (where the sensation of taste is perceived), the amygdala (where emotional memories are stored), and other parts of the limbic system of the brain.

Because the limbic system is directly connected to the parts of the brain that control heart rate, blood pressure, breathing, memory, stress levels, and hormone balance, therapeutic-grade essential oils can have profound physiological and psychological effects. The sense of smell is the only one of the five senses directly linked to the limbic lobe of the brain, our emotional control center.

Scent stimulates nerves to fire in the emotional center of the brain, but it also stimulates the master gland to release hormones. Hormones affect the fight or flight response, as well as digestion and heart rate. In this way, essential oils can affect us in many ways all at once, just through their fragrance.

Anxiety, depression, fear, anger, and joy all emanate from this region. The scent of a special fragrance can evoke memories and emotions before we are even consciously aware of it. When smells are concerned, we react first and think later. All other senses (touch, taste, hearing, and sight) are routed through the thalamus, which acts as the switchboard for the brain, passing stimuli onto the cerebral cortex (the conscious thought center) and other parts of the brain.

The limbic lobe (a group of brain structures that includes the hippocampus and amygdala located below the cerebral cortex) can also directly activate the hypothalamus. The hypothalamus is one of the most important parts of the brain, acting as our hormonal control center. It releases chemical messengers that can affect everything from sex drive to energy levels.

The production of growth hormones, sex hormones, thyroid hormones, and neurotransmitters such as serotonin, are all governed by the hypothalamus. Thus, the hypothalamus is referred to as the “master gland.” Essential oils—through their fragrance and unique molecular structure—can directly stimulate the limbic lobe and the hypothalamus.

Not only can the inhalation of essential oils be used to combat stress and emotional trauma, but it can also stimulate the production of hormones from the hypothalamus. This results in increased thyroid hormones (our energy hormone) and growth hormones (our youth and longevity hormone).

A therapeutic-grade essential oil can increase cellular oxygen up to 21 percent – no other plant component comes close!

#### Studies on Aromatherapy and the Brain

1. In a large clinical study, Alan Hirsch, MD, tested the fragrances of peppermint, to trigger significant loss in weight in a large group of patients who had previously been unsuccessful in weight-management programs. During the course of the six-month study involving over 3,000 people, the average loss exceeded 30 pounds. According to Dr. Hirsch, some patients actually had to be dropped from the study to avoid becoming underweight.

In 1989, Dr. Joseph Ledoux, at New York Medical University, discovered that the amygdala plays a major role in storing and releasing emotional trauma. From the studies of Dr. Hirsch and Dr. Ledoux we can conclude that aromas may exert a profound effect in triggering a response.

#### *Resources*

Hirsch, AR, Inhalation of Odorants for Weight Reduction, Int J Obes, 1994, page 306  
LeDoux, JE, Rationalizing Thoughtless Emotions, Insight, Sept. 1989  
Essential oils can provide many benefits to the human body without side effects, whether it is through diffusing or simply inhaling the aroma straight from the bottle. Proper stimulation of the olfactory nerves may offer a powerful and entirely new form of therapy that could be used as an adjunct against many forms of illness. Therapeutic essential oils, through inhalation, may occupy a key position in this relatively unexplored frontier in medicine.

2. In studies conducted at Vienna and Berlin Universities, researchers found that

sesquiterpenes, a natural compound found in essential oils of Vetiver, Patchouli, Cedarwood, Sandalwood and Frankincense, can increase levels of oxygen in the brain by up to 28 percent (Nasel, 1992). Such an increase in brain oxygen may lead to a heightened level of activity in the hypothalamus and limbic systems of the brain, which can have dramatic effects on not only emotions but on learning, attitude, and many physical processes of the body such as: immune function, hormone balance, and energy levels. High levels of sesquiterpenes also occur in Melissa, Myrrh, Cedarwood, and Clove essential oils.

### 3. Clinical Aromatherapy by Jane Buckel, R.N.

Psychology: Prolonged medication can be unacceptable because harmful side effects such as potential drug interactions and potentially dangerous drug overdose issues may occur.

Essential oils support because "...inhaled volatile oils diffuse into the olfactory nerve directly to the cerebrum." Antidepressants work by making the neurotransmitter serotonin linger in the gaps between brain cells, while essential oils appear to work with the body to accelerate the serotonin system—amplifying its activity similar to turning up the volume on a radio.

Many patients in the U.S. are turning to complementary alternatives.

Essential Oils for psychological support :

- Peppermint
- Lemon
- Lavender
- Bergamot
- Basil
- Lemongrass
- Sandalwood
- Frankincense
- Rose
- Jasmine
- Rosemary

### 4. "Coming to our Senses: Incorporating Brain Research Findings into Classroom Instructions." Educational Digest November 2009

Essential oils to boost learning:

- · Memory and cognitive functioning is reinforced by using aroma
- · Peppermint and lemon energized

- · One study showed that groups were able to solve puzzles 30% faster than control group
  - · Chamomile and pine were good for performance jitters before exams
  - · Pine has been used in London's Heathrow Airport to ease travelers going through customs.
  - · College students exposed to lemon performed word construction and decoding tasks better than unexposed group.
  - · Another study showed floral aromas were associated with doubling the speed of learning.
- **5.** Lavender and Rosemary aromatherapy decreased the levels of salivary cortisol indicating stress-reduction. (Atsumi and Tonosaki 89)
- **6.** Inhalation of lavender, ylang ylang, and bergamot essential oils reduced psychological stress response as indicated by reduced serum cortisol levels. (Hwang 1123)
- **7.** Aromatherapy and massage have been successfully used in reducing antenatal anxiety. (Bastard and Tiran 48)
- **8.** Frankincense: TRPV3 receptor of the brain responsive to Frankincense and this receptor is implicated in mood regulation. Frankincense does not show any adverse side effects.
- **9.** Rosemary and lavender essential oils affect cognition and mood in 144 healthy adults. These findings indicate that the olfactory properties of these essential oils can produce objective effects on cognitive performance, as well as subjective effects on mood. Moss M, Cook J, Wesnes K, Duckett P. Human Cognitive Neuroscience Unit, Division of Psychology, Northumberland Building, University of Northumbria, Newcastle upon Tyne, NE1 8ST, UK. [mark.moss@unn.ac.uk](mailto:mark.moss@unn.ac.uk)
  
- **Suggested Blends:**
  - · Forgiveness: lavender, ylang ylang, lemon, bergamot, etc.
  - · En-R-Gee: Rosemary, nutmeg, balsam fir, juniper, etc.
  - · Transformation: Frankincense, rosemary, peppermint, balsam fir, sandalwood, clary sage, lemon.

Source Website: <http://wisechoiceliving.com/our-brains-and-aromatherapy/>