Each Breath
A Blog by the American Lung Association

Essential Oils: More Harmful Than Helpful?

Essential oils should be used with caution by individuals with respiratory conditions.

by Editorial Staff | January 8, 2024

Topics: Indoor Air Patients Caregivers

Essential oils are concentrated plant extracts that are frequently used for relaxation, stress relief and mood enhancement. Obtained through pressing or distilling a plant, each essential oil retains the natural smell by using a unique composition of chemicals, such as alcohols, aldehydes, esters, ethers, ketones, phenols and terpenes. The composition of an essential oil may vary from plant to plant, and within the same species of plants. Essential oils are used in a variety of ways, such as rubbing peppermint oil on the temples for headaches, adding tea tree oil to shampoo or inhaling through a diffuser or directly from the bottle. The oils can be used individually or combined.

Essential oils are not regulated in the United States. This means there is no oversight of these products to ensure quality and we do not know exactly what is in each bottle, the concentration or contaminants.

These highly concentrated and potent essential oils can emit volatile organic compounds (VOCs) (https://lung.org/clean-air/indoor-air/indoor-air-pollutants/volatile-organic-compounds). The inhalation of VOCs commonly has negative effects on the respiratory system. Individuals can have different reactions to essential oils, just like they might to other medicines, products, allergens or irritant triggers.

According to the Public Health Law Center, "A relatively new fad in the commercial tobacco realm is vaping essential oils. Essential oil vaping devices (also called diffuser sticks, personal diffusers, or aromatherapy vape pens) heat a liquid mixture of essential oil, water, and vegetable glycerin into an inhalable vapor. If this sounds like electronic cigarettes, that's because they are practically the same thing."

Essential Oil Health Claims- Fact or Fiction?

Be cautious about broad health claims about essential oils. Scientific research on the efficacy and safety of essential oils for specific health conditions is limited and more evidence is needed. Some research even shows adverse health outcomes from essential oil use. For example, a 2022 study (https://www.researchgate.net/publication/360004529_Long-Term_Exposure_to_Essential_Oils_and_Cardiopulmonary_Health_from_a_Population-Based_Study) of 200 individuals demonstrated the negative association between the use of essential oils and cardiopulmonary health. Study participants who inhaled essential oils one hour or more each day had increased heart rate and blood pressure and a decreased lung function rate.

Aromatherapy is one of the oldest and most common uses of essential oils. Much of the research published on the benefits of aromatherapy focuses on the use of a single essential oil. However, in aromatherapy, essential oils are frequently used together. There is limited research on the combinations of essential oils, interactions between the chemicals, impacts on medications and impacts on health. It is well known that when some VOCs are combined, secondary pollutants such as formaldehyde (a known nose, throat, and lung irritant) may be produced.

Though some essential oils, such as tea tree oil, have antimicrobial properties, the benefits are minimal. Research suggests that the antimicrobial effect of essential oils could only be found during the first 30-60 min after the evaporation began. This was especially in the case of tea tree oil and means that continued use or diffusion for the purpose of disinfection is ineffective.

Essential Oils Can Negatively Affect Your Health

Essential oils are highly concentrated, so inhaling them directly can irritate the respiratory tract. This may lead to symptoms such as coughing, nose and throat irritation or shortness of breath. Individuals with respiratory conditions like asthma (https://lung.org/lung-health-diseases/lung-disease-lookup/asthma)and chronic obstructive pulmonary disease (COPD) (https://lung.org/lung-health-diseases/lung-disease-lookup/copd) may be particularly susceptible to these symptoms. Additionally, essential oils may cause allergic reactions when the oils are used on the skin or inhaled. It is important to be aware of any allergies or sensitivities to specific oils before usage.

Safety Tips:

1. **Ask Your Healthcare Professional**: If you are considering using essential oils for specific health concerns, it is crucial to prioritize safety. Consult with your healthcare professionals to provide personalized advice based on your health history and individual needs.
2. **Proper dilution**: When using essential oils for inhalation it is important to dilute them properly. Avoid inhaling undiluted oils directly, as this can lead to irritation.
3. **Diffuser safely**: If using a diffuser, follow the manufacturer's instructions and ensure that the space is well ventilated. Prolonged exposure to high concentrations of essential oils is associated with negative heart issues and lung symptoms.
4. **Individual response varies**: People's responses to essential oils can vary and what works well for one person may cause irritation to another person. Pay attention to how your body reacts and adjust usage accordingly.
5. **Patch Testing**: Before using essential oils on the skin, perform a small patch test to check for any allergic reactions or skin sensitivities.
6. **Observe and Adjust**: Monitor how your body responds to essential oils. If you experience any adverse reactions, stop using it and seek guidance from your healthcare professional.

Asthma and COPD

The use of essential oils in individuals with asthma or chronic obstructive pulmonary disease (COPD) requires careful consideration with a healthcare professional. There are claims that essential oils reduce inflammation thus reducing symptoms such as wheezing, congestion and difficulty breathing. However, these studies have focused on individuals without underlying respiratory chronic diseases, like asthma and COPD. Very little evidence exists to support the use of essential oils for anti-inflammatory effects in humans.

Asthma

Possible benefits:

Some essential oils such as eucalyptus, peppermint, and lavender are believed to have properties that may help with respiratory issues. For example, eucalyptus oil is thought to have decongestant properties that might aid in easing nasal congestion.

Potential risks:

Inhalation of certain essential oils can trigger asthma symptoms in sensitive individuals. Strong odors, such as those from essential oils, may act as irritants and lead to bronchoconstriction (tightening of the smooth muscles around the airways), coughing, or shortness of breath. Essential oils with menthol may provide the false perception that airways are opening, which could lead to masking the signs of a respiratory emergency.

COPD:

Possible benefits:

Some essential oils are believed to have anti-inflammatory and antimicrobial properties that may benefit individuals with COPD. However scientific evidence supporting these claims is limited.

Potential risks:

Individuals with COPD often have sensitivity to irritants and risk of respiratory distress. Strong odors could trigger exacerbations of COPD symptoms. COPD comes from permanent damage to lung tissue from inhaling smoke and/or noxious gases. Inhaling essential oils directly or in high concentrations can trigger symptoms in the damaged lung tissues.

Individuals with asthma or COPD should consult their healthcare professional before using essential oils and together assess any potential risks and benefits. There is little published research on interactions between pharmaceutical drugs and essential oils. Given the complex chemistry of essential oils, however, it makes sense that adverse reactions are possible or even likely. Your healthcare professional can provide advice based on your health status and potential interactions with medications. Caution should be exercised to avoid respiratory irritation or adverse effects. Always prioritize safety, proper dilution and individual response, especially for respiratory purposes. If you experience any adverse reactions, discontinue use and seek advice from your healthcare professional.

The American Lung Association recommends that best method of managing your asthma or COPD is to follow the advice of your healthcare professional, including medicines and environmental trigger reduction. Ensuring clean indoor and outdoor air is always the best course of action. Adding anything – including essential oils – to the air you breathe is not recommended. Fresh, clean air is best.

If someone swallows an essential oil, or a product containing essential oils, call Poison Control at 1-800-222-1222 right away. Poison Control will help you determine the risk and will share actions needed.

Learn more about Clean Air and Volatile Organic Compounds (VOC)s (https://lung.org/clean-air/indoor-air/indoor-air-pollutants/volatile-organic-compounds).

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