

New Study Shows Orange Essential Oil Decreases Stress and Pain

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STORY AT-A-GLANCE

- › Orange essential oil is useful for reducing stress, relieving pain, boosting mood and supporting a healthy weight
- › In children undergoing a dental procedure, orange oil reduced salivary cortisol, a biomarker of the stress response
- › Sweet orange oil boosts relaxation and may also offer antidepressant-like effects
- › A number of studies suggest using orange essential oil for massage or aromatherapy is a powerful option to relieve pain
- › Orange essential oil also has anticancer activity and was found to inhibit angiogenesis, metastasis and cell death in human colon cancer cells

Looking for a natural way to curb stress, relieve pain, minimize cravings and more? Keep a bottle of orange essential oil in your medicine chest. It offers a wealth of benefits all wrapped up in a sweet-smelling package.

Essential oils are concentrated plant extracts typically obtained via distillation or mechanical pressing. In plants, these oils give off characteristic fragrances and act as chemical weapons, defending plants from potential predators. Essential oils also protect plants against ultraviolet light, water evaporation and pathogens, while helping attract pollinators.¹

Humans have harnessed the powers of essential oils as far back as 3500 BC, when ancient Egyptians used them in religious ceremonies, cosmetics and for medicinal purposes. China, India and Europe also have a long history of using aromatic plants and aromatherapy based on essential oils.

Each plant has its own unique essential oil comprised of various terpenes, sesquiterpenes and phenolic compounds, and as such each essential oil offers different health advantages. In the case of orange essential oil, you can use it for physical, mental and emotional benefits alike.

Orange Oil Eases Stress and Anxiety

If you're having a trying day, orange oil, which is composed of 92% limonene,² may help. One study tested orange essential oil on 30 children with anxiety during dental treatment. Each child underwent a dental procedure while exposed to orange aroma and later underwent a procedure without any aroma.

Salivary cortisol, a biomarker of the stress response, was lower when the children sniffed orange essential oil. Pulse rate was also reduced. Other research has shown orange oil increases parasympathetic nervous system (PNS) activity, which triggers the relaxation response by 12%, while decreasing sympathetic nervous system (SNS) – the part that triggers your “fight-or-flight” response – activity by 16%.

Animal studies also suggest sweet orange essence has anxiety-relieving effects. And among 80 women who had just had cesarean section surgery, foot massage with orange essential oil helped to reduce anxiety.³ As for why orange oil may help reduce stress and anxiety, the researchers noted:⁴

“On inhalation of scented oils, volatile molecules of the oil reach the lungs and rapidly diffuse into the blood, causing brain activation via systemic circulation. However, these molecules also bind to olfactory receptors, creating an electrophysiological response which reaches the brain.”

Neocortex activation is expected to occur by this response, which has an effect on perception of odors and reaches the limbic system regions including amygdale and hypothalamus, the areas where levels of hormone and emotions are controlled. Thus, the salivary cortisol level and pulse rate decrease ...”

Sweet Orange Oil Boosts Relaxation, Mood

Calming your mind may be as simple as diffusing orange essential oil into the air. Researchers used sweet orange essential oil as a relaxation aid during mental breaks from work in a cross-over study. Heart rate variability (HRV), an indicator of your body’s capacity to respond to stress, was used to measure the essential oil’s effects on the workers’ states of mind.

HRV measures the variations in time between your heartbeats — a function controlled by your autonomic nervous system (ANS). As such, HRV is said to be a “proxy of autonomic activity” that’s associated with executive functions, emotional regulation and more. If you have low variation between heartbeats, it may signal that you’re stuck in fight-or-flight mode, whereas high variation between beats tends to signal a more relaxed state.⁵

The study found that HRV increased during four rest periods — by 25% to 47.5% — when sweet orange oil was used. “Stress was alleviated by exposure to sweet orange essential oil,” the team explained. “The present study indicates that following a mental work period, the release of sweet orange essential oil has the potential benefits of promoting relaxation during a rest period.”⁶ Orange oil may also offer antidepressant-like effects, likely due to its main component limonene.⁷

A Natural Form of Pain Relief

A number of studies suggest that using orange essential oil for massage or aromatherapy is a powerful option to relieve pain. Among women in labor, orange oil aromatherapy significantly relieved pain, offering a “simple, noninvasive and non-pharmacological method of pain relief in labor.”⁸

Massage sessions with ginger and orange oil over a three-week period also led to relief of moderate to severe knee pain in older adults.⁹ Another study involved 60 people admitted to an emergency room with fractured limbs. Four drops of orange essential oil were put onto a pad and pinned to the patient's collar, then replaced with a fresh one every hour.

Compared to the control group, the orange oil group had significant decreases in pain, with the researchers concluding:¹⁰

“Aromatherapy with the essential oil of orange as a complementary medicine could relieve pain in patients with fractured limbs before surgery. It can lead to faster recovery and discharging of patients as well as reduce the costs of hospitalization. In this context, aromatherapy with the orange oil in patients with fractured limbs is recommended ...

It also can stimulate the central nervous system, enhance moods, cause sedation and relief. It is an antispasmodic, an anti-inflammatory, an antibloating, a food digestive, and a diuretic, and can lower the blood pressure.”

Reduce Weight Gain and Food Cravings

Higher cortisol levels, which ramp up cravings for sweets, and chronic stress increase the risk of future weight gain.¹¹ By reducing stress, orange essential oil may help you avoid extra pounds.

Animal studies support this notion. Obese rats fed a poor diet and sweet orange essential oil microcapsules had reduced body weight gain by 41.4%.¹² The essential oil also affects gut microbiota in rats, increasing the abundance of Bifidobacterium, which protects the gut barrier and decreases gut endotoxin levels. Together, this suppresses low-grade inflammation and supports weight loss.

“This might be the mechanism of SOEO [sweet orange essential oil] microcapsules to lose body weight and provided a novel anti-obesity dietary supplement,” researchers

wrote in *Biochemical and Biophysical Research Communications*.¹³ Meanwhile, orange essential oil may give energy levels a boost, further supporting a healthy weight.

In a study on rats, sweet orange essential oil reduced exercise-induced fatigue, increasing swimming time by 276%.¹⁴ The team explained that the essential oil “mitigate[s] exhaustive-exercise-induced fatigue via the inhibition of oxidative stress, the protection of muscle injury, and the promotion of glucose-dependent energy supply.”

What Else Is Orange Essential Oil Good For?

Orange essential oil shows promise for its anticancer activity. It was found to inhibit angiogenesis, metastasis and cell death in human colon cancer cells in one study, prompting the researchers to say that the oil from blood oranges, in particular, “may offer great potential for prevention of cancer.”¹⁵

Orange essential oil also inhibited the proliferation of human lung and prostate cancer cells, with researchers noting, “Some of the oil constituents displayed high anticancer potential and deserve further study.”¹⁶

Essential oil benefits may become even stronger when used synergistically. For instance, an essential oil mix of sweet orange peel, cumin and allspice led to anti-inflammatory activity similar to that of non-steroidal anti-inflammatory drugs (NSAIDs).¹⁷ According to the study:¹⁸

“Allspice essential oil reduces ear inflammation more than 65% and the anti-inflammatory activity of allspice essential oil is enhanced when combined with sweet orange peel and cumin essential oils, resulting in the reduction of edema inflammation by more than 85%, similar to [the NSAID] indomethacin. As an alternative to anti-inflammatory treatment, essential oil mix is pharmacologically safe as it is neither toxic nor mutagenic.”

Similarly, a blend of orange, thyme, clove bud and frankincense essential oils boosted energy levels in women suffering from fatigue post-COVID.¹⁹ Foot massage with sweet

orange essential oil also improved sleep quality and symptoms of restless leg syndrome in hemodialysis patients when given three times a week.²⁰

Sweet orange oil also has insecticidal properties against house flies, making it a safe and effective option for pest control around your home.

Eating Organic Orange Peel Is Good for You

Another way to gain some of the benefits of oranges in a concentrated form is via orange peels, from which orange essential oil is extracted. Orange peels are rich in flavonoids, like hesperidin and polymethoxyflavones (PMFs), and other phytochemicals, which contribute many of their health benefits.

Orange peels (as well as the underlying white pulp, or pith) are rich in hesperidin, a flavonoid with antioxidant and anti-inflammatory properties. In middle-aged, overweight men, consuming hesperidin in oranges was found to significantly lower diastolic blood pressure (DBP) after four weeks.²¹

The polymethoxylated flavones (PMFs) in orange peels have also been shown to lower cholesterol more effectively than prescription drugs, without the side effects.²² If you choose to eat orange peels, be sure to choose organic varieties that are pesticide-free.

How to Use Essential Oils

Inhalation or applying essential oils topically to your skin are two popular methods of use. Try placing three to four drops of oil into a diffuser in your home or office when you need some stress relief. You can also sniff the oil's scent directly from the bottle using two or three deep breaths.

Another option is steam inhalation. Place three to seven drops of essential oil into boiling water, then carefully inhale the steam by covering your head with a towel and breathing through your nose. When using this method, keep your eyes closed and be careful not to get burned.

To use the essential oils topically, first do a test to be sure they don't irritate your skin. Simply apply one drop to your skin and observe it for one to two hours. Oils should be applied very sparingly to your neck, wrists, bottom of feet or behind your ears. You can blend them with a carrier oil, such as coconut oil, as well, and use them for a massage.

You can also premix essential oils with fractionated coconut oil and put the mixture into a rollerball dispenser. This way you can roll on the oil whenever you feel you need them. Feel free to expand your use of essential oils beyond orange, too. As mentioned, each oil is different, with unique benefits for your body and mind.

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