

Aromatherapy can reduce post-surgical opioid use by half, preliminary US study finds

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Aromatherapy reduces post-surgical opioid use by half in hip replacement patients anxious before their operation, according to a new

preliminary study being presented at the annual meeting of the European Society of Anaesthesiology and Intensive Care (ESAIC) in Milan, Italy (4-6 June).

Previous research has shown that [anxiety](#), depression and catastrophising (patients who believe they are going to die during surgery) increase post-operative pain and [opioid](#) use by up to 50%.

Aromatherapy, the use of essential oils to enhance well-being, has been used for thousands of years and a number of recent studies have found that lavender and peppermint [aromatherapy](#), in particular, can reduce anxiety.

However, most of these studies have looked at series of patients, rather than having a more rigorous randomized, placebo-controlled design, which has made it difficult to draw firm conclusions from the results.

This study, from Professor Jacques Chelly and colleagues at the Department of Anaesthesiology, University of Pittsburgh, Pittsburgh, U.S., is one of the first to employ a randomized, placebo-controlled design to look at whether aromatherapy reduces anxiety.

Since January 2020, patients undergoing primary total hip replacements at UPMC Presbyterian-Shadyside Hospital, Pittsburgh, and who consent to taking part in the study, have filled in a survey that screens them for anxiety (PROMIS Emotional Distress—Anxiety—Short Form 8a).

To date more than 350 patients have been screened in this way.

Those scoring as having a moderate level of anxiety or above are enrolled in the study, which is ongoing and aims to enroll 60 patients.

Participants are randomized to an active treatment (aromatherapy) or

[placebo group](#). Those in the active treatment group are given a lavender and peppermint "aromatab", an adhesive patch that slowly releases [essential oils](#) when stuck onto clothes, skin or a hospital gown, to wear from at least an hour before their operation.

The patches are changed every 12 hours and are worn for 72 hours after surgery.

Those in the placebo group wear a patch which emits sweet almond oil—an oil not credited with anxiety-lowering qualities.

Levels of anxiety, depression, catastrophising, pain and opioid consumption are recorded over the course of the study.

Preliminary data on the first 25 participants (average age 60.6 years, 13 males and 12 females) is presented here. The primary outcome is the effect of aromatherapy on anxiety 48 hours after surgery.

The baseline (pre-operative) anxiety score was similar in both groups (23.5 in aromatherapy group vs. 22.9 in placebo group).

48 hours post-operation, the anxiety score had fallen in both groups but the drop was greater in the aromatherapy group (anxiety score of 13.5 in aromatherapy group vs. 16.2 in placebo group).

Total opioid use in the first 48 hours after surgery was 50% lower in the aromatherapy group (12 OME) than in the placebo group (24.75 OME). (OME, oral morphine equivalent, is a measure that allows comparison between different drugs and methods of administration).

The data on levels of pain, depression and catastrophizing has yet to be analyzed.

The researchers concluded: "Our results suggest that, by controlling anxiety, aromatherapy can help control pain and reduce opioid consumption. This is important, given the established role of the use of opioids in surgical patients in the overall opioid crisis in the US."

Opioids have sedative and analgesic effects and are widely prescribed to after surgery to control pain. They are also addictive.

Drug overdose deaths involving opioids (prescription and non-prescription, such as heroin) have increased more than six-fold since 1999 in the US and nearly 600,000 people in the US and Canada have died from [opioid overdoses](#) over the past two decades.

Professor Chelly says: "The pandemic has made the situation even worse, with over 100,000 drug overdose deaths reported in 2021."

It has recently been estimated that, without urgent intervention, including public health policy reform and stricter corporate regulations, there will be an additional 1.2 million opioid deaths in North America by 2029.

Although North America is at the center of the opioid crisis, opioid misuse is an increasing public health concern in the UK.

Professor Chelly says: "Evidence supports the concept that routine operations can be a gateway to long-term opioid use and addiction (opioid use disorder) and it is therefore important to consider techniques that may reduce the perioperative use of opioids and therefore the development of opioid-use disorders following surgery.

"Aromatherapy is a simple and cost-effective technique which can minimize the impact of anxiety on post-operative pain and opioid consumption.

"We hope that providing objective evidence about the benefits of aromatherapy will help address the concerns of those who are skeptical about its value.

"At UPMC Presbyterian-Shadyside Hospital, we are routinely using lavender-peppermint aromatherapy in patients who indicate they are anxious before surgery."

One possible mechanism of action of aromatherapy is through the limbic system, a brain structure known to regulate pain, emotion and anxiety. Professor Chelly and colleagues plan to study the effect of aromatherapy on the brain next, using MRI.

Provided by The European Society of Anaesthesiology and Intensive Care (ESAIC)

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