The sense of smell is critical to human survival and experience. Babies find their mother’s breast through smell, and smell is one of the last senses to fade at death.

All living organisms can detect and identify chemical substances in their environment. Whereas a fish has only 100 odor receptors, mice have nearly one thousand. Humans have few odor receptors, but they are highly specialized.

Smelling occurs through a series of complicated cascade reactions. It begins with chemicals making up an aroma dissolving in mucus excreted by the olfactory epithelium: a small area the size of a postage stamp just above and behind the nose that houses olfactory receptors. Each olfactory receptor cell possesses only one type of odorant receptor and can detect a limited number of odorant substances. The cells transmit impulses directly to the primary olfactory area of the brain, the olfactory bulb. The olfactory bulb further relays the information to other parts of the brain where it is combined with information from other olfactory receptors and forms a pattern. The smell of a lilac flower in the spring can be later recalled in the olfactory memory.

The sense of smell is also important in sexuality, and aromas have been used to enhance sexual attraction for thousands of years. The scents of various perfumes can elicit intense and emotional human response while subtly hinting at sexuality, social status, personality, and cultural background. Scents originally obtained from aromatic plants, such as rose, jasmine, and lavender, today have synthetic counterparts in the $33 billion cosmetics and perfume industries.1

Limited research exists on the long-term effects of synthetic aroma. However, there is a host of anecdotal evidence demonstrating that essential oils may enhance sexuality, relieve Candida and herpes infections, ease pregnancy stress, aid labor, and relieve menopausal hot flashes.

**Aromatherapy**

Aromatherapy is the specific use of essential oils (steam distilled from aromatic plants). Essential oils can be administered in many ways: through inhalation; orally; or topically through bathing, compresses, creams and oils, and spritzers. The oral route is used mainly to treat the intestinal tract. There are some published data on each method. For example, peppermint oils capsules can be taken orally for irritable bowel; Melissa was applied to the face for dementia; Rosemary was applied topically for alopecia; *eucalyptus globulus* can be inhaled to treat upper respiratory infections. There are both *in vitro* and human studies that show Eucalyptus is effective against some bacterial pneumonia. Essential oils can be
obtained from various parts of an aromatic plant: from the seeds (black pepper), leaves (eucalyptus), flowers (rose), wood (sandalwood), resin (frankincense), and root (ginger). Sometimes, one plant will produce two different essential oils from two different parts. For example, Angelica archangelica produces an essential oil from the root and a different essential oil from the seeds. Both are different chemically, smell different, and are used for different therapeutic effects.

The method of extraction is important. There are only two ways to obtain an essential oil. One is through distillation, which involves heat. The other method, which is only used on the peel of citrus fruit, is expression, when the skin is abraded and the juice and essential oil are separated through centrifugal separation. Both processes produce a pure essential oil with no additives.

Enhancing sexuality
Traditionally, aromas of ylang ylang and jasmine are thought to increase sexuality. Both are found in many of the world's leading perfumes. However, the effectiveness of the scent depends on the cultural background and learned memory of the person experiencing the scent. Learned memory is difficult to change because it links into reflex responses generated from the amygdala.

The amygdala is a tiny almond-shaped organ located deep in the temporal lobes of the brain, medial to the hypothalamus and adjacent to the hippocampus. The amygdala is an integral part of the limbic system that governs response to stress and anxiety as well as emotional and sexual response. The limbic system is where smell is analyzed, so it is reasonable to accept that smell could impact fear, anxiety, or sexual response.

Treating herpes
Essential oils are showing potential to help the millions in the United States who suffer from genital herpes caused by the herpes simplex virus (HSV). Nearly 67 million people suffer from genital herpes in the United States, and there are 500,000 new cases annually. The essential oil Ravansara aromatica appears both to ameliorate herpes (both HSV 1 and 2) outbreaks and to lengthen duration between outbreaks. An essential oil from Madagascar, Ravansara aromatica, is high in 1,8-cineole, a cineole compound also found in rosemary and Eucalyptus globulus that has a particular medicinal aroma.

While cineole has the reputation of sometimes being aggressive on abraded mucous membrane, applying 50% to 100% Ravansara in sweet almond oil on intact herpes lesions prior to bursting has resulted in reduction of pain, itching, and swelling in a series of anecdotal case studies. When the lesions are raw, 25% Ravansara is more comfortable due to the high drying ability of the oil.

Combating yeast infections
Candida albicans is the cause of common vaginal infections and is becoming resistant to conventional medicines such as Monistat and Diflucan. However, Melaleuca alternifolia (tea-tree) is 95% likely to cure the infection within three days, regardless of how long the patient has been infected. Dr. Belaiche published a small clinical study on the success of tea-tree on vaginal infections twenty years ago. The author has recommended this method to hundreds of women.

But not just any tea-tree oil will do. “Tea-tree” is the general name for all species of Melaleuca, Leptospermum, Kunzea, and Baeckea plants. The tea-tree needed to treat vaginal infections is a particular species called Melaleuca alternifolia. The method for applying tea-tree is extremely simple. Mix 2 to 3 drops of Melaleuca alternifolia in 5 mL of cold-pressed vegetable oil (eg, sweet almond oil). Roll a tampon in the mixture and then insert into the vagina. (The simplest method is to mix the essential oil and vegetable oil on a saucer and then roll the tampon in the mixture until it is saturated—it will remain rigid.

<table>
<thead>
<tr>
<th>Common name</th>
<th>Botanical name</th>
<th>Suggested use</th>
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<tbody>
<tr>
<td>lavender</td>
<td>Lavandula angustifolia</td>
<td>labor</td>
</tr>
<tr>
<td>tea-tree</td>
<td>Melaleuca alternifolia</td>
<td>Candida albicans</td>
</tr>
<tr>
<td>Ravansara</td>
<td>Ravansara aromatic</td>
<td>Herpes HSV 1 and 2</td>
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<tr>
<td>clary sage</td>
<td>Salvia sclarea</td>
<td>Menopause</td>
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<tr>
<td>fennel</td>
<td>Foeniculum vulgare</td>
<td>Menopause</td>
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<tr>
<td>geranium</td>
<td>Pelargonium graveolens</td>
<td>Menopause</td>
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<tr>
<td>peppermint</td>
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<td>Cooling</td>
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<td>ylang</td>
<td>Cananga odorata var genuine</td>
<td>Aphrodisiac</td>
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<td>jasmine</td>
<td>Jasminum officinalis sambac</td>
<td>Aphrodisiac</td>
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but the carrier oil will lubricate the tampon and allow easy insertion. The tampon should be changed three times a day—about every eight hours—with a new tampon plus fresh dilution of the tea-tree mixture applied. A tampon in situ overnight—or eight hours—will not lead to toxic shock syndrome.

Even though there do not appear to be any adverse side effects, occasionally oxides can be uncomfortable when applied to irritated or abraded vaginal tissue. Therefore, if the yeast infection has exposed raw areas in the vaginal wall, apply Lavandula angustifolia (true lavender), which has been diluted in vegetable oil first, on a tampon or sitz bath for 1 or 2 days until the excoriated area has healed. The patient’s partner also needs to apply the tea-tree mixture four times a day to avoid cross-infection.

This is a very safe and effective method of eradicating Candida (and many other vaginal infections).

**Easing pregnancy**

Aromatherapy is an often-overlooked approach to helping ease pregnancy-related stress partly because of a widely held perception that it is not safe for pregnant women. This perception exists even though there are no warning notices on bottles of perfume, scented soap, or toothpaste that contain essential oils. Further, there are no records of abnormal or aborted fetuses due to aromatherapy, whether from inhaling or applying essential oils topically. There are no records of a few drops of essential oil taken by mouth causing any problems either.

There are, however, a handful of records that link two specific essential oils, pennyroyal and parsley seed, to abortion if several milliliters of the essential oils are taken by mouth. At the same time, however, there are two cases recorded where the same amount of pennyroyal taken by mouth did not result in the fetus being aborted, and the mother recovered. The amounts taken varied from 10 mL (in the case of pennyroyal) to 1.5 mL to 6 mL for eight consecutive days (in the case of parsley seed). This is between 100 to 200 times greater than the normal amount of essential oil used in aromatherapy. (Usually only 1 to 5 drops are applied topically to the skin, or inhaled.)

Despite the perception that the use of aromatherapy can be harmful to pregnant women, its use has benefited thousands of mothers. In the United Kingdom, essential oils have been used during pregnancy and delivery at many hospitals for about 15 years, and expectant mothers often appear at the delivery suite with their own box of essential oils. Hospitals such as Hinchingbrooke Hospital in Huntingdon, St John’s Hospital London, St Elizabeth’s Hospitals in London, and the Radcliffe Infirmary in Oxford have been encouraging this and it would be expected that any adverse effects would have appeared by now.

Some essential oils are thought to have emmenagogic actions that cause very tiny uterine contractions and can bring on a menstrual period a few days early. However the hormonal effects of pregnancy are quite different from those of the menstrual cycle, and it is extremely unlikely using essential oils either topically or inhaled would compromise a stable pregnancy.

Eileen Nathan, a midwife, used topically applied essential oils during hospitalized pregnancy-induced hypertension on Long Island, New York. In one case, the mother’s blood pressure remained above 200/100 despite intravenous medication. Unable to control the hypertension, the attending physician asked Nathan if she would try aromatherapy. After verbal consent from the patient, Nathan used a 2% solution of Lavandula angustifolia in a hand ‘m’ technique®. Slowly the patient’s blood pressure began to come down, and after 15 minutes, it dropped to 150/85. The fetal heart rate also improved from mid-150s to mid 130s. Within one hour, the woman’s blood pressure was normal.

**Essential oils may enhance sexuality, relieve Candida and herpes infections, ease pregnancy stress, aid labor, and relieve menopausal hot flashes.**
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Essential oils

Relieving labor distress
Evidence suggests that aromatherapy can reduce anxiety during labor. Lavender, geranium, frankincense and clary sage can also be very useful during labor in low dilution, according to Jane Swingle, a midwife who uses aromatherapy at Newborn Family Center Chenango Memorial Hospital in Norwich, New York.

Finally, an eight-year study of aromatherapy effects on 8058 laboring women in the 1990s by Ethel Burns found aromatherapy significantly relieved pain and anxiety, strengthened contractions, and reduced the amount of epidurals used.12

Ann Adams, a midwife at Banner Desert Medical Center in Mesa, Arizona, has been offering lavender to enable women to deliver more speedily. The attending physician was “very pleased with effects of lavender.”

Moderating menopausal symptoms
Geranium (Pelargonium graveolens) is thought to encourage hormonal balance through its action on the adrenal cortex. Geranium can be particularly useful during menopause, especially when added to a mixture of estrogen-like essential oils, such as fennel, sage, and clary sage. Clary sage in particular can be beneficial possibly because it contains a sesquiterpenol (an alcohol with 15 carbon atoms) called sclareol, which is very similar to estradiol. Apply a 12% to 20% dilution of a mixture of the estrogen-like oils in a cold-pressed carrier oil or water-based cream to the low abdomen twice a day continuously for several weeks to get an accumulative effect. The added, judicious use of an aromatherapy spritzer (essential oils in water, shaken vigorously in an atomizer prior to use) can help alleviate the intensity of hot flashes, particularly when a few drops of peppermint are added for its cooling effects. For serious hot flashes and mood swings, however, herbal remedies such as red clover, chasteberry, and black cohosh are recommended.

Conclusion
Essential oils have been found effective in the treatment of various vaginal infections and diseases as well as to ease pregnancy stress, shorten labor and relieve menopause symptoms. Midwives can play an important role as practitioners of essential oils and aromatherapy as anecdotal evidence shows support from gynecologists and obstetricians. However, large randomized controlled trials of all of the essential oils discussed here would be helpful to define their efficacy.

REFERENCES

Clary sage aromatherapy can reduce anxiety during labor, when used in low dilution. Clary sage is also beneficial in moderating hot flashes.