

The Dangers of Inhaling Petrochemical Fragrances and Scented Products

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STORY AT-A-GLANCE

- › Perfumes and scented products often contain undisclosed synthetic compounds due to regulatory loopholes, leaving consumers unaware of the harmful chemicals labeled simply as “fragrance”
- › Many scented products release chemicals that contribute to indoor air pollution and increase your risk of health issues like allergies and respiratory problems
- › Some fragrance chemicals act as endocrine disruptors, increasing the risk of reproductive, developmental and metabolic problems, particularly in vulnerable groups like children
- › Synthetic fragrances pollute waterways and harm ecosystems, with some chemicals persisting long-term
- › Choosing fragrance-free or naturally scented products will reduce your exposure; advocate for transparency in labeling as well to push the industry toward safer practices

Perfumes have captivated people since ancient times. Today, fragrance has evolved into a massive global industry, with revenue reaching a whopping \$50 billion in 2023 and projected to hit \$70 billion by 2036.¹

The average adult uses about a dozen scented personal care products each day.² Yet, few consider what goes into making these scents — a surprising mix of undisclosed

synthetic chemicals. These compounds aren't limited to perfumes; they're also in everyday products like shampoos, lotions and household cleaners.

Research³ found that up to 99.1% of the population is exposed to at least one scented product every week, either through personal use or indirect exposure from others. This leads to inhaling or absorbing dozens, if not hundreds, of different compounds, which have been linked to various health and environmental concerns.

Harmful Chemicals Lurking in Perfumes and Scented Products

According to the International Fragrance Association,⁴ over 3,500 fragrance chemicals are used in products today, many of which are derived from petrochemicals and formulated to enhance or prolong the scents.

However, due to legal loopholes, manufacturers are not required to disclose each chemical. Instead, they're allowed to simply label these substances under the umbrella term "fragrance" to protect their "trade secret." According to a report published in the *Journal of Xenobiotics*:⁵

"Personal care products (PCPs) are formulated with several classes of organic chemicals (e.g., fragrances, antiseptics, additives, fixatives, preservatives and solvents) that can enter all environmental compartments and pose considerable risks to human health and marine and terrestrial wildlife."

In this context, "organic" simply means the compound contains carbon or hydrogen; it doesn't imply that the substances are natural or eco-friendly. In fact, the study outlines an array of synthetic agents found in scented products, including alkylphenols, antimicrobials, bisphenols, cyclosiloxanes, ethanolamines, parabens, phthalates and benzophenone. These are just a few classes among hundreds of substances used.

The authors also note that synthetic fragrances, which are largely petroleum-based, are of particular concern, as they're cheap and therefore widely used, making them a major contributor to declining indoor air quality and increasing personal exposure and health risks. They list a cocktail of hard-to-pronounce ingredients:⁶

"Synthetic fragrances include derivatives of several chemical structures and organic functions: acids, alcohols, esters, aldehydes, acetals, nitrogen heterocycles, oximes, amides, amines, nitriles, Schiff base, oxygen heterocyclics, lactones, coumarins, ethers, sulfur heterocycles, thiols, sulfides, thiocyanates, dithiazides and hydrocarbons.

For instance, the transformation of alkenes, alkynes, dienes, and enynes results in carbo- and heterocyclic fragrances with natural and tunable scents."

Each of these categories of chemicals poses significant health and environmental risks, especially with consistent and cumulative exposure. Many of these compounds don't simply dissipate but will build up in your body and the environment, leading to long-term effects that are not immediately apparent.

Fragrance Chemicals Contribute to Indoor Air Pollution

The study in the *Journal of Xenobiotics*⁷ highlighted the dangers of fragrances to indoor air. The authors explained that these chemicals are volatile organic compounds (VOCs), which easily evaporate into the air and contribute to indoor air pollution. These VOCs are especially harmful in enclosed spaces like homes and offices, where ventilation is limited.

What's particularly alarming is that indoor VOC concentrations are higher than what is typically found outdoors, contributing to a range of health issues, including headaches, dizziness and respiratory irritation, as well as long-term risks such as asthma and cardiovascular or neurological problems. The study also highlighted the dangers of VOCs to children:⁸

"Due to the vulnerability of children at an early age exposed to VOCs, the fragrances in children's products are pollutants of concern since they appear as potential carcinogens, endocrine disruptors, neurotoxicants, phytotoxins and skin sensitizers.

In a study of 42 fragranced baby products, over 600 emitted VOCs were detected, of which approximately one-third are hazardous. These VOCs comprised different chemical classes but predominated the fragrance compounds limonene, α -pinene, linalool, β -myrcene, β -pinene and acetaldehyde (additive/fragrance) and the solvents (ethanol, acetone)."

Moreover, these VOCs react to indoor air, leading to the formation of secondary pollutants such as formaldehyde, a well-known respiratory irritant and carcinogen, as well as ultrafine particles, which penetrate deep into the lungs and even enter the bloodstream due to their minuscule size, contributing to cardiovascular stress and systemic inflammation.⁹

Some Fragrance Chemicals Are Endocrine Disruptors

Fragrance chemicals not only pollute indoor air but also disrupt the endocrine system, which is responsible for regulating growth, metabolism and reproduction. These compounds, often referred to as endocrine-disrupting chemicals (EDCs), mimic, block or alter natural hormones, leading to serious health implications.

Key EDCs commonly found in fragrances include phthalates, synthetic musks, parabens, benzophenone, eugenol, isoeugenol, octinoxate and oxybenzone.¹⁰ Even in trace amounts, these ingredients disturb the delicate hormonal balance necessary for normal biological processes.¹¹

Phthalates, in particular, interfere with estrogen and testosterone pathways, affecting reproductive health in both men and women. Research has linked it to issues such as reduced sperm count, fertility problems and developmental abnormalities in children exposed prenatally.^{12,13} Synthetic musks accumulate in body tissues and mimic hormone activity, further altering your body's endocrine function.¹⁴

The subtle hormonal shifts that result from constant exposure to these EDCs daily in environments like homes, workplaces and schools eventually increase your risk of thyroid issues, metabolic disorders and hormone-sensitive cancers. Children are

particularly susceptible to EDCs, as their developing bodies are sensitive to hormonal disruptions.¹⁵

During important stages of development, such as the prenatal period, infancy and puberty, EDCs have lasting impacts on growth, brain development and reproductive health. Early exposure has been linked to accelerated puberty, behavioral shifts and metabolic disturbances later in life.¹⁶

Health Issues Linked to Fragrances and Other Personal Care Products

A review published in the *Journal of Dermatology and Cosmetology*¹⁷ took a deep dive into the health risks associated with perfumes and scented personal care products like cosmetics, concluding that fragrance ingredients must meet the same requirements for safety as other cosmetic ingredients. According to the researchers, chemicals in these products are linked to:¹⁸

Contact dermatitis – This type of skin rash manifests in two forms – allergic and irritant. Allergic contact dermatitis is a delayed reaction, appearing hours to days after exposure and presenting as red, inflamed and itchy skin. Irritant contact dermatitis occurs from repeated exposure to mildly irritating substances, leading to immediate skin damage and rashes.

Contact urticaria (hives) – This condition involves itchy, raised welts on the skin, commonly triggered by fragrance allergens. Contact urticaria sometimes escalates into angioedema, where deeper layers of skin swell, causing pain and warmth. In extreme cases, exposure leads to anaphylaxis, a severe, life-threatening allergic reaction.

Phototoxicity – Phototoxic reactions occur when certain chemicals in perfumes or cosmetics become reactive under sunlight. This leads to a severe sunburn-like effect, damaging your cell membranes and DNA in the skin. Phototoxic compounds, such as

furocoumarins, absorb UV light and cause visible skin damage, leaving long-term discoloration or burn-like injuries.

Photoallergy – Unlike phototoxicity, photoallergic reactions are immune-driven and develop only after repeated exposure to both a chemical and sunlight. This reaction is relatively rare but causes chronic skin irritation and discoloration. Photoallergic reactions occur after using certain medications or personal care products with photosensitizing agents.

Cancer – Phthalates, benzene derivatives and formaldehyde-releasing agents in perfumes are absorbed through the skin or inhaled as aerosols, disrupting hormone pathways and increasing the risk of hormone-related cancers. Additionally, certain fragrance chemicals bioaccumulate in your body, raising long-term exposure risks and leading to cellular changes associated with cancer development.

Reproductive problems – Chemicals in fragrances have been linked to fertility issues, menstrual irregularities and other reproductive and thyroid health problems. Products like bubble baths or shower gels, if used near your sensitive areas, introduce risks of infections, hormonal imbalance and even cancer in reproductive organs.

Lung diseases – Inhalable chemicals from powder-based cosmetics and fragrances damage your lung tissues over time. Particulate ingredients in talcum powder, for example, cause respiratory issues such as allergies, asthma exacerbation and chronic lung irritation, particularly in people with existing respiratory sensitivities.

Irritation and redness – Certain ingredients, such as benzene, phenol, salicylic acid, resorcinol and phosphoric acid, cause intense stinging or burning sensations within minutes of application. Although these reactions subside after several minutes, frequent use leads to ongoing sensitivity and redness, especially if your skin's pH balance is disrupted.

Hair and scalp problems – Many hair products, including dyes and styling sprays, contain harsh chemicals that cause scalp irritation, dandruff and even hair thinning.

Hair dyes, in particular, are associated with toxic allergic reactions leading to burning, itchy scalp and respiratory irritation.

Headaches and neurological effects – VOCs trigger headaches, nausea and dizziness. For people experiencing migraines, these compounds significantly worsen symptoms, leading to chronic headaches or neurological disruptions with prolonged exposure.

The Impact of Fragrances on the Environment

The chemicals in your scented products don't just affect your body – they have a significant impact on the environment, too. When you shower with fragranced products or spray perfumes or air fresheners, these chemicals wash down the drain, seep into soil or drift into the air.

Many fragrance compounds are particularly stubborn – they resist breaking down in water treatment plants and persist in rivers and streams for years. Studies have found these synthetic fragrances accumulate in marine life, disrupting ecosystems and contributing to air pollution.^{19,20}

Musk compounds have been detected in human breast milk, ocean sediments, and even Arctic ice.²¹ These chemicals travel thousands of miles from their source, affecting wildlife and environments far from where they were initially used. Even the packaging of these products, like plastic containers and aerosol cans, adds to mounting waste.

Given what we know about the health and environmental impacts of fragrances, it's time for a serious reconsideration of your use of synthetic fragrances. Pleasant scents may be appealing, but the true cost of artificial fragrances is far too high – a price that neither your health nor the planet can keep paying.

Freshen Yourself and Your Space with Safe, Natural Alternatives

A report published in *Air Quality, Atmosphere and Health*²² found that there's now a growing demand for fragrance-free environments, with over half of the survey participants expressing a preference for fragrance-free workplaces and health care settings. This shift reflects a rising awareness of the health risks associated with conventional fragrances and a demand for safer, nontoxic options.

The good news is, if you're looking to avoid harmful chemicals, there are many nontoxic fragrance options available. All-natural products made from organic essential oils, like lavender, citrus, eucalyptus, rosemary, sandalwood, peppermint and other botanical sources provide an alternative to synthetic fragrances.

Natural anti-odor ingredients like baking soda, witch hazel, tea tree oil, activated charcoal, coconut oil and aloe vera are also effective alternatives for neutralizing odors. For more on using these options, check out my article, "[How to Make a Natural Odor Eliminator](#)."

While natural scents are subtler, their formulations are clearer and simpler. They're free of petrochemicals, phthalates or synthetic musks, so they're better for both your health and the environment. When shopping, it helps to look for products labeled as "phthalate-free," "paraben-free" or "unscented." However, don't rely solely on these claims — read the full ingredient list.

Keep in mind that your skin absorbs what you put on it, so making your choice of personal care products is just as important as your diet. Choosing products thoughtfully will help lower your exposure to harmful chemicals and safeguard your health in the long run.

Advocate for Healthier Skin and Body Care Products

The fragrance and personal care industry has operated unchecked for too long, flooding the shelves with products full of questionable chemicals while hiding behind weak regulations. While we need a comprehensive reform of the laws governing this industry, we don't have to wait for new regulations to protect ourselves.

The first step is simple — flip over your products and read the labels. If you can't pronounce most ingredients or if the word "fragrance" appears repeatedly, it's time to rethink your choices. Look for products with ingredients you recognize, and remember — simpler is typically safer. Here are additional ways to drive even more positive changes:

- 1. Get informed** — Use resources like the Environmental Working Group's Skin Deep database²³ to understand what's in your products and make informed decisions.
- 2. Support brands that prioritize safety** — Choose to buy from companies that are transparent about their ingredients and put consumer safety first.
- 3. Advocate for safer chemistry** — Encourage schools and universities to teach green chemistry practices, which pave the way for safer, more eco-friendly products.
- 4. Think about the planet** — Look for products that aren't just safe for you but also kind to the environment.
- 5. Rethink beauty standards** — Take a moment to evaluate the societal norms that prioritize appearance, or in this case, scent, over health. Consider whether artificial fragrances in products like hand soap or lotion are truly necessary for you.

Your choices matter. Each time you skip artificially fragranced products in favor of safer alternatives, you send a clear message to manufacturers: "We demand better." The growing market for natural and fragrance-free products proves that change is possible — and it starts with informed consumers making smarter choices.

Progesterone Helps Mitigate the Effects of EDCs in Fragrances

The best way to minimize your exposure to endocrine-disrupting fragrance chemicals is to avoid using them altogether. Sometimes, the best scent is no scent at all. The obsession with masking natural odors has led to the overuse of fragrances in nearly every product. By breaking free from this cycle, you not only protect yourself but help create a market for safer alternatives.

However, if you find yourself frequently using scented products, one way to counteract the effects of EDCs is through the use of transmucosal progesterone combined with vitamin E, as detailed below.

Progesterone is a hormone that acts as a switch to "turn off" estrogen's activity, helping mitigate the effects of phthalates and other estrogenic compounds. By counteracting the effects of these disruptive chemicals, progesterone helps restore balance in your body's hormonal systems.

How to Use Progesterone

Before you consider using progesterone, it is important to understand that it is not a magic bullet, and that you get the most benefit by implementing a Bioenergetic diet approach that allows you to effectively burn glucose as your primary fuel without backing up electrons in your mitochondria that reduces your energy production. My new book, "Your Guide to Cellular Health: Unlocking the Science of Longevity and Joy," covers this process in great detail.

Once you have dialed in your diet, an effective strategy that can help counteract estrogen excess is to take transmucosal progesterone (i.e., applied to your gums, not oral or transdermal), which is a natural estrogen antagonist. Progesterone is one of only four hormones I believe many adults can benefit from. (The other three are thyroid hormone T3, DHEA and pregnenolone.)

I do not recommend transdermal progesterone, as your skin expresses high levels of 5-alpha reductase enzyme, which causes a significant portion of the progesterone you're taking to be irreversibly converted primarily into allopregnanolone and cannot be converted back into progesterone.

Ideal Way to Administer Progesterone

Please note that when progesterone is used transmucosally on your gums as I advise, the FDA believes that somehow converts it into a drug and prohibits any company from

advising that on its label. This is why companies like Health Natura promotes their progesterone products as "topical."

However, please understand that it is perfectly legal for any physician to recommend an off-label indication for a drug to their patient. In this case, progesterone is a natural hormone and not a drug and is very safe even in high doses. This is unlike synthetic progesterone called progestins that are used by drug companies, but frequently, and incorrectly, referred.

Dr. Ray Peat has done the seminal work in progesterone and probably was the world's greatest expert on progesterone. He wrote his Ph.D. on estrogen in 1982 and spent most of his professional career documenting the need to counteract the dangers of excess estrogen with low LA diets and transmucosal progesterone supplementation.

He determined that most solvents do not dissolve progesterone well and discovered that vitamin E is the best solvent to optimally provide progesterone in your tissue. Vitamin E also protects you against damage from LA. You just need to be very careful about which vitamin E you use as most supplemental vitamin E on the market is worse than worthless and will cause you harm not benefit.

It is imperative to avoid using any synthetic vitamin E (alpha tocopherol acetate – the acetate indicates that it's synthetic). Natural vitamin E will be labeled "d alpha tocopherol." This is the pure D isomer, which is what your body can use.

There are also other vitamin E isomers, and you want the complete spectrum of tocopherols and tocotrienols, specifically the beta, gamma, and delta types, in the effective D isomer. As an example of an ideal vitamin E, you can look at the label on our vitamin E in our store. You can use any brand that has a similar label.

You can purchase pharmaceutical grade bioidentical progesterone as Progesterone Powder, Bioidentical Micronized Powder, 10 grams for about \$40 on many online stores like Amazon. That is nearly a year's supply, depending on the dose you choose.

However, you will need to purchase some small stainless steel measuring spoons as you will need a 1/64 tsp, which is 25 mg and a 1/32 tsp, which is 50 mg. A normal dose is typically 25-50 mg and is taken 30 minutes before bed, as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

Unfortunately, this vendor frequently runs out of product, and if that's the case, then you can use [Simply Progesterone by Health Natura](#). It's premixed with vitamin E and MCT oil. Again, while Health Natura states that its product is for "topical use only," I recommend applying it transmucosally, by rubbing it on your gums.

If you are a menstruating woman, you should take the progesterone during the luteal phase or the last half of your cycle, which can be determined by starting 10 days after the first day of your period and stopping the progesterone when your period starts.

If you are a male or non-menstruating woman, you can take the progesterone every day for four to six months and then cycle off for one week. The best time of day to take progesterone is 30 minutes before bed as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

This is what I have been personally doing for over a year with very good results. I am a physician so do not have any problems doing this. If you aren't a physician, you should consult one before using this therapy, as transmucosal progesterone therapy requires a doctor's prescription.

Sources and References

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