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(This category highlights potential health issues from fragrance chemicals and fragranced products.)

Download the poster to share: <https://www.fragrancefreecoalitionusa.com/>

Go Fragrance Free: Healthier Air Has Never Been Easier

Many hospitals, businesses, and employees are not aware that fragranced products can create access barriers to their facilities and can adversely affect the health of those working there. Fragranced products include fragranced cleaning products, hand sanitizers, lotions, laundry products, deodorant, air fresheners or any other scented items.

MEDICATIONS/TOPICAL CREAMS

Prescription and OTC: Lotions, Sprays, Creams and Supplements

1. Contact Dermatitis to Medications and Skin Products

Nguyen HL, Yiannias JA. Contact Dermatitis to Medications and Skin Products. Clin Rev Allergy Immunol. 2019 Feb;56(1):41-59. doi: 10.1007/s12016-018-8705-0. PMID: 30145645.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/30145645/>

“Today, consumer products, such as soaps, moisturizing creams, cosmetics, household cleaners, fragrances, **topical medication**, and others, contain a myriad of ingredients that can **cause skin allergy**. When these products contact the skin, they can produce **eczematous pruritic reactions** known as contact dermatitis...”

“...the prevalence of contact dermatitis has been increasing worldwide for the past few decades.”

“**Fragrance mix I, fragrance mix II, and Myroxylon pereirae resin (Balsam of Peru)** are in the **top 11 allergens** of the NACDG 2013–2014...”

“**Fragrance mix I** contains eight allergens:

cinnamic alcohol, cinnamic aldehyde, α -amylcinnamal aldehyde, eugenol, isoeugenol, hydroxycitronellal, geraniol, and oakmoss absolute...”

“...**fragrance mix II** was introduced with six more compounds:

hydroxyisohexyl-3-Cyclohexene- carboxaldehyde (HICC), citral, farnesol, coumarin, citronellol, and α -hexylcinnamal ...”

[**Note:** also see, **Airborne Contact Dermatitis**, these reactions are happening to people when [fragrance chemicals float](#) around and are simply present in the air. For example, someone can react if their caregiver or person next to them uses fragranced laundry products.]

2. Allergic contact dermatitis from fragrance components in specific topical pharmaceutical products in Belgium

Nardelli A, D'Hooghe E, Drieghe J, Dooms M, Goossens A. Allergic contact dermatitis from fragrance components in specific topical pharmaceutical products in Belgium. Contact Dermatitis. 2009 Jun;60(6):303-13. doi: 10.1111/j.1600-0536.2009.01542.x. PMID: 19489964.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/19489964/>

“Three hundred and seventy (10%) of 3280 of the topical pharmaceutical products were found to contain a total of 66 fragrance substances. Among 3378 patients suffering from iatrogenic allergic contact dermatitis, 127

were found to react to 48 specific products, for which 38 different fragrance substances gave relevant positive reactions. Women were more affected than men, and legs, hands, and face were the most commonly affected body sites.”

“**Fragrances**, the presence of which is in most cases **unnecessary**, do contribute to iatrogenic allergic contact dermatitis. Moreover, **sensitized patients have difficulties in avoiding their specific allergens because standardized labelling of the ingredients in pharmaceutical products is lacking.**”

[**Note: In the EU**, [26 known fragrance allergens](#) have been a labeling requirement [since 2009](#), but as of 2022 the EU is planning to add [56 more fragrance allergens](#).]

[**Note: IN THE U.S. NEWS** - On Dec. 29, 2022, the MOCRA - (Modernization of Cosmetic Regulation Act) was signed into law. In a few years, the U.S. should start listing [fragrance allergens in cosmetics](#), but this Act may tie the hands of states' ability to make a law pertaining to disclosing the over 3,000 other potentially concerning fragrance ingredients ([like California did](#)).

To learn more, see what [Women’s Voices for the Earth \(WVE\)](#) have figured out.

To read the Act, go to [congress.gov link/PDF](#) (page 1396).

What to know:

Which products qualify as ‘[cosmetics](#)’ and [Who regulates what??](#)

Items such as fragranced laundry products, air fresheners, carpet fragrance, fragrance in cleaning products or car / car wash fragrances are not considered cosmetics, therefore, it is safe to say that companies who sell these products will not be obligated to list the known fragrance allergens in their products.]

3. Ubiquity, Hazardous Effects, and Risk Assessment of Fragrances in Consumer Products

Pastor-Nieto MA, Gatica-Ortega ME. Ubiquity, Hazardous Effects, and Risk Assessment of Fragrances in Consumer Products. *Curr Treat Options Allergy*. 2021;8(1):21-41. doi: 10.1007/s40521-020-00275-7. Epub 2021 Jan 23. PMID: 33520600; PMCID: PMC7825391.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/33520600/> - [PDF](#)

“Fragrances are the most frequent chemicals causing contact dermatitis. Their main sources are cosmetics, household products, industrial substances, food flavorings, **oral hygiene products**, and **topical medications**. It is difficult for sensitized patients to avoid contact with fragrances, due to their ubiquity and because **manufacturers are not willing to volunteer information regarding fragrance ingredient**. The treatment of contact dermatitis relies on **allergens avoidance** which does not “cure” the disease (sensitization persists for life) but prevents disabling illness. **The patient should understand that avoiding perfume means to avoid all scented goods and not just perfumes.**”

“Labeling fragrances is key in primary prevention... However, only 26 fragrances are mandatory to be declared in cosmetics. The vague labeling of other fragrance ingredients as “perfume” or “fragrance” hampers the diagnostic and preventive approaches. ...Therefore, in our opinion, **declaration should be mandatory for all fragrance ingredients** as well as straightforward so most consumers can understand it. Cosmetics, toothpastes, and **medications** are common causes of **allergic contact cheilitis**. Some ingredients (cinnamal) act as both fragrance and flavoring in oral hygiene products and foodstuff. **Cinnamic alcohol** and **eugenol** are used in mouthwash and toothpastes.”

“According to one study, 10% of topical medications’ labels include fragrances...”

[**Note:** See pictures in PDF. This article was based out of Spain.]

4. Fragrances: Contact Allergy and Other Adverse Effects

de Groot AC. Fragrances: Contact Allergy and Other Adverse Effects. *Dermatitis*. 2020 Jan/Feb;31(1):13-35. doi: 10.1097/DER.0000000000000463. PMID: 31433384.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/31433384/>

“In the general adult population, up to 4.5% may be allergic to fragrance materials, and in consecutive patients patch tested for suspected contact dermatitis, the frequency may reach 20% to 25%...”

“Fragrances are an important and frequent cause of contact allergy and allergic contact dermatitis, notably from their presence in fragranced products such as deodorants, fine fragrances and aftershaves, other cosmetics (**both leave-on and rinse-off products**), household products, **topical pharmaceuticals**, essential oils, foods, and, to a lesser degree, industrial products.”

“Other adverse effects reported from fragrances include immediate type reactions (mostly nonimmune immediate contact reactions, **contact urticaria**), **photosensitivity**, **respiratory disorders**, and miscellaneous adverse effects including **irritant contact dermatitis**, **depigmentation**, and **systemic adverse effects**.”

“Fragrances are volatile, and therefore, in addition to skin exposure, a perfume also exposes the **eyes and nasorespiratory tract**. Already 35 years ago, it was suspected and later confirmed that fragrances can induce or **worsen respiratory problems** including **asthmatic attacks**.”

“People may **experience symptoms** not only from wearing perfume themselves but also around cosmetic counters, candle shops, and **from perfumes worn by other people**. Currently, it is estimated that 2% to 4% of the adult population is affected by respiratory or eye symptoms from such exposures. Frequently reported symptoms include **dry, itching, or watery eyes; nasal irritation; congestion; and sneezing**; as well as **mouth and throat irritation, shortness of breath, and cough**.”

5. Skin exposure to scented products used in daily life and fragrance contact allergy in the European general population - The EDEN Fragrance Study

van Amerongen CCA, Ofenloch RF, Cazzaniga S, Elsner P, Gonçalo M, Naldi L, Svensson Å, Bruze M, Schuttelaar MLA. Skin exposure to scented products used in daily life and fragrance contact allergy in the European general population - The EDEN Fragrance Study. *Contact Dermatitis*. 2021 Jun;84(6):385-394. doi: 10.1111/cod.13807. Epub 2021 Mar 2. PMID: 33576005; PMCID: PMC8247875.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/33576005/> - [PDF](#)

“**Sensitive skin** was associated with exposure to scented products and with **fragrance allergy**. In univariable regression analysis, exposure to leave-on products and to specific scented product subgroups was significantly associated with fragrance allergy.”

“These products can be intended to be left on the skin such as **creams** and perfumes, intended to be rinsed off the skin such as **shampoos** or shaving products, or intended to be used as household items.”

“The current study shows that females are indeed more exposed to scented products and consequently may be more frequently **sensitized** to fragrance **allergens** than males.”

“In the current analysis, sensitive skin was associated with exposure to perfumes, sunscreens, **skin creams** and eye make-up. In addition, reporting a **sensitive skin** was associated with **fragrance contact allergy** in univariable regression analysis.”

“We found significant associations between overall exposure to scented products and fragrance contact allergy.”

6. Environmental exposure to xenoestrogens and oestrogen related cancers: reproductive system, breast, lung, kidney, pancreas, and brain

Fucic A, Gamulin M, Ferencic Z, Katic J, Kraymer von Krauss M, Bartonova A, Merlo DF. Environmental exposure to xenoestrogens and oestrogen related cancers: reproductive system, breast, lung, kidney, pancreas, and brain. Environ Health. 2012 Jun 28;11 Suppl 1(Suppl 1):S8. doi: 10.1186/1476-069X-11-S1-S8. PMID: 22759508; PMCID: PMC3388472.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/22759508/> - [PDF](#)

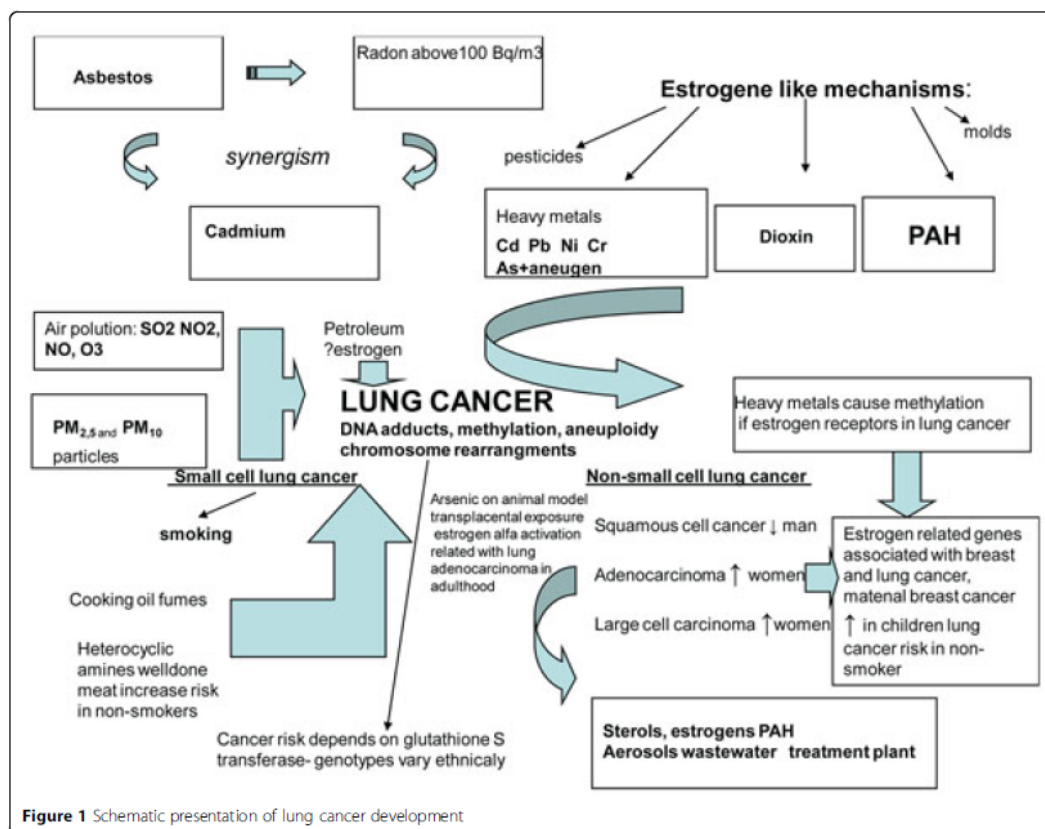
“The general population is exposed to a number of hormonally active compounds on a daily basis. . . . **Chemicals like** polycyclic aromatic hydrocarbons (PAH), pesticides, polychlorinated biphenyl (PCB), dichlorodiphenyl-trichlorethane (DDT), some drugs (e.g., antiepileptic drugs), fungicides, cotinine, phytoestrogens, mycotoxins, bisphenol A (a plastics additive), **phthalates**, alkylphenols, and metalloestrogens **mimic oestrogen action, affect oestrogen levels, or bind to oestrogen receptors.**”

“**Xenoestrogens** are present in a number of substrates such as **cigarette smoke**, automobile exhaust, **chemical industry pollutants**, grilled meat, volcano dust, forest fire smoke, milk, water, and **cosmetic products**. This means that all human population may be exposed to them.”

“Currently there are some 160 xenoestrogens that may be involved in **breast cancer** development. Women are the largest consumers of cosmetic products which may be a significant source of xenoestrogens. Some, such as metalloestrogens (e.g., aluminium salts), **parabens**, cyclosiloxanes, triclosan, UV screeners, **phthalates**,... Humans are exposed to these chemicals transcutaneously and measurable levels have been detected in human breast tissue.”

(Note: This graphic is from the preceding article)

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“Although gene polymorphisms can change cancer incidence, it is clear that environment has predominance over genes in cancer risk. “

[Note: Fragrance is considered the new ‘second hand smoke’, “[The parallels between second-hand smoke and synthetic fragrance use are many. At its core, both are battles over indoor air quality](#) “ - quote and link from De Vader, Christy L. & Barker, Paxson.

Chemicals that cigarettes/cigarette smoke and fragranced products can have in common are: Acetone, Formaldehyde, Benzene, acetaldehyde, terpenoids and phenols.]

[Note: [Phthalates](#) are [synthetic](#) odorless plasticizers used as solvents, binders or fixatives [in many fragrances](#). Why are phthalates [in the news](#)? [Phthalates](#) are considered Endocrine Disrupting Chemicals. On the [California Safe Cosmetics Program Product Database](#): [DEP](#), [DIDP](#), and [DBP](#) are reported as fragrance while [DEHP](#) and [DBP](#) are perfume solvents. [IFRA](#) lists [DEP](#) and [DMP](#), as “reported fragrance ingredients”.]

7. Newborn chemical exposure from over-the-counter skin care products

Cetta F, Lambert GH, Ros SP. Newborn chemical exposure from over-the-counter skin care products. Clin Pediatr (Phila). 1991 May;30(5):286-9. doi: 10.1177/00092289103000504. PMID: 2044337.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/2044337/>

“...many product ingredient labels list & fragrances. **The chemical composition and potential toxicity of these fragrances is not publicly available.**”

“In light of the relative permeability of newborn skin, the potential hazards of repetitive environmental chemical exposure from OTC skin care products need to be addressed.”

“**This study documents the large number of chemicals, some of which are toxic, to which the average newborn is exposed during the first month of life.**”

8. Pediatric allergic contact dermatitis. Part I: Clinical features and common contact allergens in children

Neale H, Garza-Mayers AC, Tam I, Yu J. Pediatric allergic contact dermatitis. Part I: Clinical features and common contact allergens in children. *J Am Acad Dermatol*. 2021 Feb;84(2):235-244. doi: 10.1016/j.jaad.2020.11.002. Epub 2020 Nov 17. PMID: 33217510.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/33217510/> - [PDF](#)

“Children can develop ACD (Allergic Contact Dermatitis) at any age.... Therefore, all children should be asked about the use of personal care products such as **shampoos, soaps, lotions, detergents, and topical medications**....systemic contact dermatitis can occur through oral ingestion of contact allergens in food, such as carmine in red velvet cupcakes, nickel in oatmeal and cocoa, and **balsam of Peru (BoP)** in ketchup....Nickel, **fragrance mix (FM) I, BoP, propylene glycol, CAPB, bacitracin, neomycin, cobalt, formaldehyde (and its releasers),** methylisothiazolinone (MI), and **lanolin** are top relevant allergens in the United States.”

“Fragrances are ubiquitous environmental allergens, and although **there are potentially thousands of allergenic fragrance chemicals**, fragrance markers such as BoP, FM I, and FM II are most frequently used in patch testing.... Fragrances are often used in household products like candles and cleaning supplies. **Children may also be exposed to fragrances used by their care takers, such as perfumes, leading to cases of connubial ACD.**”

“**Formaldehyde** is found in cosmetic and personal care products (**including baby products**), cleaning supplies, adhesives, sporting equipment, and paints. **One study showed that more than 25% of those with PPTs to formaldehyde were also sensitized to its releasers** such as quaternium-15, dimethyloldimethyl hydantoin, bronopol, diazolidinyl urea, and imidazolidinyl urea.

“Often, products such as **baby wipes may contain formaldehyde releasers** even though they may not be listed among the ingredients. **Formaldehyde (and releasers) contact allergy is more frequent in the United States compared to Europe, likely reflecting stricter regulation of product concentration and labeling in Europe.**”

[Note: **Balsam of Peru** is used in [fragrance](#) and is a [known allergen](#). Like with all fragrance allergies, [avoidance is suggested.](#)]

[Note: **Formaldehyde** is a [secondary pollutant](#) from fragrance and fragranced products.

Also, a 2012 study, 21 out of 30 perfume samples were shown to [release formaldehyde](#) when tested but formaldehyde was not listed on any of the labels. Formaldehyde is a [sensitizer](#) and [known allergen](#).]

9. Airborne contact dermatitis to drugs

Minciullo PL, Imbesi S, Tigano V, Gangemi S. Airborne contact dermatitis to drugs. *Allergol Immunopathol (Madr)*. 2013 Mar-Apr;41(2):121-6. doi: 10.1016/j.aller.2012.01.004. Epub 2012 Mar 24. PMID: 22445186.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/22445186/> - [PDF](#)

“Airborne agents consist of volatile substances, droplets of the causative agent, and solid particles originated from powdery dust of various materials.”

“Airborne reactions involve exposed areas, such as the face, the neck, the hands, wrists, underarms; however, reactions on non-exposed areas (by particles trapped under clothing) have been also reported. Generalised reactions may occur due to inhalation or transcutaneous absorption.”

“Airborne causes are still greatly underestimated because reports in the literature often omit this term when dust or volatile substances are responsible for skin reactions.”

[**Note:** Airborne Contact Dermatitis happens with fragrance chemicals as well ie: air fresheners, laundry, deodorant, dish soap, floor cleaners and hand sanitizers. Anyone with contact allergies cannot avoid the air, please go Fragrance Free with all products especially in healthcare, dental, schools, or any public space.]

10. Potential Allergens in Disposable Diaper Wipes, Topical Diaper Preparations, and Disposable Diapers: Under-recognized Etiology of Pediatric Perineal Dermatitis

Yu J, Treat J, Chaney K, Brod B. Potential Allergens in Disposable Diaper Wipes, Topical Diaper Preparations, and Disposable Diapers: Under-recognized Etiology of Pediatric Perineal Dermatitis. *Dermatitis*. 2016 May-Jun;27(3):110-8. doi: 10.1097/DER.000000000000177. PMID: 27172304.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/27172304/>

“We found fragrances in 33.3% of diaper wipes and 43.6% of topical diaper preparations.”

“Other potential allergens identified with high frequency include >-tocopherol, **fragrances**, propylene glycol, parabens, iodopropynyl butylcarbamate, and lanolin.”

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11. Companion animals get close to the toxic aspects of antropogenic world: cytotoxicity of phthalates and bisphenol A on dog testicular primary cells

Tekin K, Arslan P, Cil B, Filazi A, Akçay E, Yurdakok-Dikmen B. Companion animals get close to the toxic aspects of antropogenic world: cytotoxicity of phthalates and bisphenol A on dog testicular primary cells. Cytotechnology. 2020 Oct;72(5):629-638. doi: 10.1007/s10616-020-00401-y. Epub 2020 May 20. PMID: 32435861; PMCID: PMC7547924

Article Link: <https://pubmed.ncbi.nlm.nih.gov/32435861/> - [PDF](#)

“This study aimed to reveal and compare the cytotoxic effects of selected phthalates... According to cytotoxicity results, **DEHP was found to be the most toxic phthalate**... Further studies should focus on morphological, physiological and molecular differences to comprehend the mechanisms involved as well as decreasing the risk for impaired **spermatogenesis** caused by environmental toxicants in companion animal medicine”

“• Human and dog share similar environment where pollutants such as plasticizers lead reproductive disorders in both species.

- DEHP was the most toxic on primary testicular cell culture of dog.
- Comparative evaluation of endocrine disrupters on male reproductive system would allow us to understand the protective mechanisms involved.”

“**Phthalates** and Bisphenol A (BPA) are the most common synthetic chemicals, widely used in automotive, **personal care consumer product and medical industries**. Phthalates, also called plasticizers, are a group of chemical substances used to soften plastics. Some phthalates have shown detrimental effects on the endocrine and reproductive system...”

“Environmental concentrations of DEHP and DBP have been linked with **decreased sperm motility** both in vivo and in vitro in humans as well.”

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12. Multicomponent analytical methodology to control phthalates, synthetic musks, fragrance allergens and preservatives in perfumes

Sanchez-Prado L, Llopart M, Lamas JP, Garcia-Jares C, Lores M. Multicomponent analytical methodology to control phthalates, synthetic musks, fragrance allergens and preservatives in perfumes. Talanta. 2011 Jul 15;85(1):370-9. doi: 10.1016/j.talanta.2011.03.079. Epub 2011 Apr 5. PMID: 21645712.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/21645712/>

“The average number of **fragrance allergens** is twelve per sample; their presence must be indicated in the list of ingredients when its concentration exceeds the 0.001%, but values higher than 1% have been found in some samples. Preservatives data show that **parabens**, although ubiquitous in other cosmetic products, are not widely used in perfumery. In contrast, the presence of **BHT (butylated hydroxytoluene)** is indeed widespread.”

“The degree of compliance with the European Regulation on the labelling has been evaluated in a subset of samples, and **only about the 38% of the perfumes were properly labelled for the allergens tested.**”

13. Neurotoxicity of Ortho-Phthalates: Recommendations for Critical Policy Reforms to Protect Brain Development in Children

Stephanie M. Engel, Heather B. Patisaul, Charlotte Brody, Russ Hauser, Ami R. Zota, Deborah H. Bennet, Maureen Swanson, and Robin M. Whyatt, 2021: Neurotoxicity of Ortho-Phthalates: Recommendations for Critical Policy Reforms to Protect Brain Development in Children American Journal of Public Health 111, 687_695, <https://doi.org/10.2105/AJPH.2020.306014>

Article link: <https://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2020.306014?role=tab> - [PDF](#)

“There are robust data from longitudinal birth cohort studies conducted over the last decade that have shown associations between prenatal exposures to ortho-phthalates and **attention-deficit hyperactivity disorder (ADHD)**, other **behavioral problems**, **adverse cognitive development** including **lower IQ**, **poorer psychomotor development**, and **impaired social communication**. This growing body of evidence, along with the known **adverse effects on male reproductive tract development** of ortho-phthalates, calls for immediate action.”

“Phthalates including **DEP** and **DBPs** are commonly used in cosmetics and other personal care products, and are sometimes used as excipients in **medications** and **supplements** (see the box on page 689). For example, DEP and DBPs are used in a wide range of personal care products including **nail polish**, **lotions**, **fragrances**, and **hair-styling products**.... **Phthalates are readily transferred from mother to fetus during pregnancy.**”

“There is no longer any basis for the agency to conclude that there is “reasonable certainty of no harm” from these uses... All of the phthalates that have been associated with adverse child neurodevelopment, discussed previously, are currently approved by FDA for food contact use.”

“Authority to regulate phthalates in cosmetics (which are defined broadly to include many personal care products) also falls under **FDA jurisdiction**. However, **the agency’s authority is much less comprehensive and health protective than its authority to ensure the safety of food or drugs**. This needs to be rectified by congressional action.”

“Substantial evidence links exposure to phthalates with increased risks for **child learning**, **attention**, and **behavioral problems**. We therefore recommend that phthalates be eliminated from products that may lead to exposure of women of reproductive age, pregnant women, infants, and children.”

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14. Developmental Exposure to Endocrine Disrupting Chemicals and Its Impact on Cardio-Metabolic-Renal Health

Singh RD, Koshta K, Tiwari R, Khan H, Sharma V, Srivastava V. Developmental Exposure to Endocrine Disrupting Chemicals and Its Impact on Cardio-Metabolic-Renal Health. *Front Toxicol.* 2021 Jul 5;3:663372. doi: 10.3389/ftox.2021.663372. PMID: 35295127; PMCID: PMC8915840.

Article Link: <https://pubmed.ncbi.nlm.nih.gov/35295127/> - [Free Full Text](#)

“Endocrine disrupting chemicals (EDCs) include phenols, phthalates, parabens, flame retardants, heavy metals, pesticides, perfluorinated chemicals, UV filter components, triclosan, and organochlorines.”

“Cumulative exposure to mixtures of EDCs can lead to adverse effects on the health of the exposed individuals (Crews et al., 2003). Multiple studies, including the studies of the National Health and Nutrition Examination Survey (NHANES), have shown that about 75–97% of US and Asian adults have detectable levels of phthalates and phenols [bisphenol A (BPA) and polyfluoroalkyl chemicals] in their urine (Silva et al., 2004; Calafat et al., 2007, 2008; Vandenberg et al., 2010; Zhang et al., 2011; Husøy et al., 2019).”

“Epidemiological and experimental studies have also linked adult exposure to EDCs with abnormal male and female reproductive health, diabetes, obesity, cardiovascular and metabolic disorders, thyroid function, and hormone sensitive cancers (Howard and Lee, 2012; Bodin et al., 2015; Heindel et al., 2015, 2017).”

“Children are also vulnerable to EDCs (Calafat et al., 2017; Hendryx and Luo, 2018), making EDC exposure a major health concern for all age groups.”

“Chronic kidney disease is a growing health problem among children and adults. The incidence and the prevalence of chronic kidney disease (CKD) among children have been steadily increasing since the 1980s.... A number of traditional risk factors associated with CKD in children include hypertension, obesity, diabetes, and aberrant divalent mineral metabolism.... There is growing evidence that links exposure to EDCs with early progression to end-stage renal disease (ESRD) (Kataria et al., 2015)....”

“Early-life exposure to EDCs was associated with elevated levels of kidney toxicity markers such as albumin-to-creatinine ratio (ACR), estimated glomerular filtration rate (eGFR), and urinary protein-to-creatinine ratio (UPCR) in some human population studies (Li et al., 2012; Trasande et al., 2013a, 2014; Malits et al., 2018).”

[Note: [Endocrine Disrupting Chemicals](#) (EDC’s) are [commonly used in perfumes and fragranced products](#) as preservatives or fragrance. [What are EDC’s](#) and how can they [affect us?](#)]

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