**The Price We Pay for Beauty**

Is your liquid soap contributing to bacterial resistance, ADHD (Attention Deficit Hyperactivity Disorder), social impairment or metabolic problems? Is the ingredient that makes your shampoo lather contaminated with a carcinogenic compound? Or is the lotion that you use potentially affecting your hormones and fertility? The personal care products industry is a large and ever-growing enterprise with labeling and regulations that are arguably insufficient. Unfortunately many people are unaware of the potential adverse health effects of products that they use every day and may be suffering as a result.

With a little knowledge and some helpful resources, you can become a more educated and healthy consumer. Before we jump into the chemical soup, a helpful principle deserves mention: *The Precautionary Principle*. This principle advocates a cautious approach when considering adopting a new chemical or product for human use. You can apply this yourself if you find an ingredient in a product that you do not recognize or are concerned about- if in doubt, opt out! There are lots of safe products on the market to choose from.

Particular caution should be exercised in using new skin products if you have a history of eczema, contact dermatitis or other skin complaints.



So let’s review some of the leading chemicals found in personal care products such as soap, shampoo, conditioners, lotion, sunscreens, make-up, nail polish/products, hair products and dyes:

**Phthalates**- It can be found in cosmetics, perfume, nail polish & products, liquid soap, hairspray and also in medical tubing and IV (intravenous) bags. Phthalates can interfere with reproductive health, fat and carbohydrate metabolism and can contribute to cancer, allergies, asthma, obesity, insulin resistance and neurodevelopmental disorders (ADHD, social impairment in kids).

**Parabens** are preservatives that are widely used in cosmetics and other personal care products to prevent microbial growth. They have been shown to possess ***endocrine disruptor activity***. (Chemicals with this distinction interfere with normal hormonal function and can cause developmental, behavioral and fertility issues. Chemicals with endocrine disruptive activity can interact with receptors for neurotransmitters such as serotonin, dopamine and norepinephrine (which are important in regulating mood, behavior and hormonal function).) Phthalates have been detected in human blood, breast and placenta. On labels, this class of chemicals may be listed as ‘*methylparaben*’, ‘*butylparaben*’ or ‘*propyl paraben’*.

**Perfumes**- from those you apply directly to your skin, to the wafting of perfume from magazine strips, perfume is all around us and can cause a host of problems. There are at least 3,000 chemicals used as fragrances and on labels they may simply be listed as ‘*parfum*’ or ‘*fragrance*’. No further disclosure of their ingredients on labels is required. ***Musk xylene*** and ***musk ketone*** are common chemical bases for perfume scents and have been linked to PMS (Premenstrual Syndrome), disruptions in the estrogen:progesterone balance, decreased ovarian function and infertility. Other chemicals in perfume have been linked to cancers and neurotoxicity.

**Triclosan** is an antimicrobial used in hand sanitizing products and in antibacterial soaps. This chemical is a known endocrine disruptor- linked to thyroid and reproductive issues. Its frequent use may also lead antibiotic resistance to bacteria. Cleaning your hands thoroughly with soap and water is just as effective as antimicrobial soap (and safer)!

**Sodium Laureth Sulfate** **(SLES)** is a foaming agent used in shampoos, shower gels and cleansers. It is an irritant to the skin and eyes and may be contaminated with 1,4-dioxane (which we will discuss in a moment).

**1,4- dioxane** is a carcinogenic (cancer-causing) chemical that is not required to be disclosed on a label. USDA Organic products do not contain this chemical.

**DEA (diethanolamine)** and related compounds can be found in soaps, shampoos and cleansers (added as a foaming agent or to adjust the pH of the product). These compounds cause skin and eye irritation, precancerous changes in the skin and thyroid and cancerous changes in the liver (in laboratory experiments). DEA compounds can react with other chemicals in cosmetics to form carcinogenic *nitrosamine compounds*.

**Lead** can be found in lipstick and hair dyes. The [FDA](http://www.fda.gov/cosmetics/productandingredientsafety/productinformation/ucm137224.htm) claims that concern over lead in lipstick is unwarranted, while others in this [Washington Post article](http://www.washingtonpost.com/business/economy/400-lipstick-brands-contain-lead-fda-says/2012/02/14/gIQAhOyeDR_story.html) question this point of view. As discussed in last month’s blog, “excess levels of lead in the body can lead to autism, ADHD, developmental disorders, neuropsychiatric symptoms, cancer, reproductive health issues and other conditions. It is particularly problematic for young children, leading to behavioral problems, lower IQ scores and learning difficulties.”

**Nanotechnology** is an emerging technology in which tiny molecules are used in medicine for targeted drug delivery and imaging purposes. In the cosmetics industry, nanoparticles can be found in sunscreen and cosmetics. There are concerns about the possible consequences of these particles, but no hard evidence about their effects in humans just yet.

**Oxybenzone, Methoxycinnamate** are endocrine disruptors found in sunscreen. Choosing sunscreens with titanium dioxide or zinc oxide is a safer bet.

**PERC (perchloroethylene),** also known as **tetrachloroethylene**, is used in dry cleaning. This chemical is neurotoxic and is a suspected carcinogen. Opt for ‘green dry cleaning’ or hand wash instead.

**Petrochemicals** are petroleum based compounds such as *petrolatum*, *mineral oil* and *paraffin.* These compounds prevent the skin from breathing properly and can be contaminated with PAHs (polycyclic aromatic hydrocarbons) which can cause (when exposure occurs prenatally) low birth weight, premature delivery, heart malformations, decreased IQ and childhood asthma. PAHs are also associated with cancer.

**Coal Tar** is present in synthetic colors and will appear on labels as ‘*FD & C*’ or ‘*D & C’*. These compounds can contain heavy metal salts with can be carcinogenic.

**Ureas** are preservatives that release formaldehyde (a known human carcinogen). These chemicals can also cause contact dermatitis. This class of compounds may appear on labels as ‘*diazolidinyl urea’, imidazolidinyl urea, hydantoin, DMDM, sodium hydroxymethlyglycinate methaenamine,* and *quaternium-15.*

**Formaldehyde** is also found in nail hardening products.

**BHA & BHT** ( butylated hydroxyanisole and butylated hydroxytoluene respectively) are preservatives which possess possible endocrine disruptor activity and carcinogenic effects.

**PEGs (polyethylene glycols)** are used as cream bases, thickeners and solvents for a wide variety of personal care products. PEGs may be contaminated with 1,4-dioxane and show some evidence of genotoxicity. PEGs also increase the permeability of the skin and can thus increase absorption of other, potentially harmful, constituents in a product. ***Propylene glycol*** is a related chemical that is best avoided.

**Siloxanes** are another class of endocrine disruptor chemicals that can be found in hair products, deodorants, moisturizers and facial products. This class of chemicals includes ‘*cyclotetrasiloxane’, ‘cyclopentasiloxane’, ‘cycloshexasiloxane’,* and ‘*cyclomethicone’.*

**Resorcinol**, a compound in hair coloring and bleaching products, can cause allergies, is potentially toxic to the immune system and can disrupt thyroid function.

**Retinyl Palmitate**, a vitamin A containing compound, when applied to skin in the presence of sunlight, can speed the development of skin tumors and lesions.

So now that you re armed with greater knowledge on some of the leading compounds to avoid in personal care products, how do you find what is safe to use? There are a number of helpful resources and guides to consult (see below). And remember the Precautionary Principle…when in doubt, opt out! Taking care of your overall health will bring greater beauty and health to your skin, hair and nails than most products could ever impart!

**Resources:**

For a handy pocket guide or app on ***The Dirty Dozen – Cosmetic Chemicals to Avoid***, [click here](http://www.davidsuzuki.org/publications/resources/2010/sustainable-shoppers-guide-to-the-dirty-dozen-ingredients-to-avoid-in-your-cosme/?utm_source=Dirty-dozen-inline-button&utm_medium=Image&utm_content=Shoppers-guide&utm_campaign=Cosmetics).

To determine the safety of your personal care products, visit the [**EWG (Environmental Working Group) Cosmetics Database**](http://www.ewg.org/skindeep/)**,** **‘Skin Deep’** where you can look up over 75, 000 products and get helpful tips and credible information.

The following video: ‘[The Story of Cosmetics’](http://www.youtube.com/watch?v=pfq000AF1i8&feature=player_embedded) provides a helpful overview of what was covered in this blog.

**The Campaign for Safe Cosmetics** has a host of helpful news and resources on its site: <http://safecosmetics.org/>

**Nanotechnology Consumer Products Inventory** provides an inventory of nanotechnology-based products currently on the market: <http://www.nanotechproject.org/inventories/consumer/>

**References:**

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