DETOX YOUR DAILY LIFE

SIMPLE STEPS YOU CAN TAKE TODAY TO PROTECT YOURSELF AND YOUR FAMILY

Stephanie Berg, ND

MEDICAL DISCLAIMER

Information herein is provided for informational purposes only. The techniques and advice described in this e-book represent the opinions of the author based on her training and experience. The author expressly disclaims any responsibility for any liability, loss or risk, personal or otherwise, which is incurred as a result of using any of the techniques, suggestions or recommendations suggested herein.

This e-book and the information it contains is not intended as medical or health advice or as a substitute for the advice provided by your physician or other healthcare professional or any information contained on or in any product label or packaging. Always speak with your physician or other licensed healthcare professional before taking any medication or nutritional, herbal or homeopathic supplement, using any treatment for a health problem or making major diet and lifestyle changes. If you have or suspect that you have a medical problem, contact your health care provider promptly. Do not disregard professional medical advice or delay in seeking professional advice because of something you have read in this e-book. Your download and/or reading of this e-book DOES NOT create a doctor-patient relationship between you and Stephanie Berg, ND. The education and information presented herein is intended for a general audience and does not purport to be, nor should it be construed as, specific advice tailored to any individual. The use of any information provided in this book is solely at your own risk.

Information and statements regarding dietary supplements have not been evaluated by the Food and Drug Administration and are not intended to diagnose, treat, cure, or prevent any disease.

Contents

Why You Need to Reduce the Toxins in Your Life

Did you know that the products you use every day may contain hundreds of chemicals that can cause a myriad of detrimental health effects?

Going through a regular day, the average person encounters a constant stream of chemical toxins from personal care products, food, water, canned foods, plastic water bottles, air fresheners, perfumes, paint, printing ink, flame retardants, pizza boxes, popcorn bags, disposable coffee cups and more. These are just a few of the everyday things that contain an alphabet soup of harmful toxins – PCBs, PBDEs, VOCs, EMFs and PFCs, not to mention arsenic, cadmium, mercury and lead. Many of these hundreds and thousands of chemicals simply didn't exist prior to the mid-twentieth century. Our grandparents undoubtedly faced their own unique stressors, but they were nothing like the barrage of chemicals, heavy metals and pollution that our bodies are faced with today. Although the human body has an innate capacity to detoxify itself, people today are exposed to a level of industrial toxins that the human organisms never evolved to handle.

The unfortunate reality is that we just don't know all of the health impacts. The President's Cancer Panel of 2010 found that "with nearly 80,000 chemicals on the market in the United States, many of which are used by millions of Americans in their daily lives and are un- or understudied and largely unregulated, exposures to potential environmental carcinogens is widespread."[1]

For example, the majority of Americans now carry higher bodily levels than ever before of endocrine-disrupting chemicals that dysregulate the delicate system of hormones that regulates virtually every aspect of the body's metabolism and function, including reproductive health. Endocrine-disrupting compounds that mimic the body's hormones have been linked to heart disease, diabetes and obesity, infertility and potential problems during development in fetuses and young children. One such chemical compound, bisphenol A (BPA), is contained in many food cans and packaging and even thermal receipts. Studies have found that when you eat canned soup or drink soy milk from a BPA-coated container, you increase BPA levels in your body more than tenfold![2] And unsurprisingly, this can have deleterious health effects. For example, having a level of BPA in your urine above 5 micrograms per liter doubles your risk of diabetes, since BPA has been shown to block the receptor sites on the cells that insulin activates to allow glucose into the cells. And eating canned soup every day for a week causes BPA levels over four times this threshold! And even just two servings a week doubles the risk of diabetes. And that's just one of these toxic chemicals. We are exposed to multiple chemical toxins, and we don't know how they may interact synergistically to cause even more damage and disease.

Do you use air fresheners? Most all commercial air fresheners contain a host of offending chemicals including volatile organic compounds (VOCs), benzene and formaldehyde which can cause headaches and nausea and aggravate asthma, and have been linked to neurological damage and cancer. And the Natural Resources Defense Council (NRDC)—an international environmental organization—conducted a study called, "Clearing the Air: Hidden Hazards of Air Fresheners" in which they found **86% of air fresheners tested contained dangerous phthalates**.[3] Numerous animal studies have shown exposure to phthalates decreases testosterone, causes malformations of the genitalia, and reduced sperm production. **And human studies link phthalates to changes in hormones, poor semen quality, and changes in genital**

formation. Five phthalates, including one found in air fresheners are listed by the State of California as **"known to cause birth defects or reproductive harm**."

Do you ever order out for pizza? To increase their durability and confer heat resistance, pizza boxes are widely treated with perfluorinated alkylated substances (PFASs) to make them resistant to water and grease stains. PFASs cause low-dose endocrine disruption and immunotoxicity.[4] And PFAS are used in a wide range of other products, including nonstick cooking pans and utensils, stain resistant sprays for furniture, sleeping bags, electronics like cell phones, backpacks, footwear and even hospital equipment.

And these chemicals are showing up in the human body – even before birth. In a study spearheaded by the Environmental Working Group (EWG) in collaboration with Commonweal, researchers at two major laboratories found an average of 200 industrial chemicals and pollutants in umbilical cord blood from 10 babies born in August and September of 2004 in U.S. hospitals. Tests revealed a total of 287 chemicals in the group tested. The umbilical cord blood of these 10 children, collected by Red Cross after the cord was cut, harbored pesticides, consumer product ingredients, and wastes from burning coal, gasoline, and garbage.[5] A few years later, the EWG, in partnership with Rachel's Network, commissioned five laboratories in the U.S., Canada, and Europe to analyze umbilical cord blood collected from 10 minority infants born in 2007 and 2008. Collectively, the laboratories identified up to 232 industrial compounds and pollutants in the cord blood of these babies, finding complex mixtures of compounds in each infant.[6]

In fact, a sampling of pregnant women in the United States showed that virtually every study participant had at least 43 different environmental chemicals in her bloodstream, including certain polychlorinated biphenyls, organochlorine pesticides, perfluorinated compounds, phenols, polybrominated diphenyl ethers, phthalates, polycyclic aromatic hydrocarbons, and perchlorate.[7] During the past 30 years, the rates of many noncommunicable diseases, including obesity, diabetes, infertility, asthma, autism, attention deficit hyperactivity disorder, certain birth defects, childhood cancers, and cancers of the breast and reproductive tract, have increased.[8] Although it is very likely that these increases are multifactorial, there is legitimate concern that exposure to industrial chemicals and other environmental toxins, especially those that affect endocrine function, plays a significant role.[9]

And this book is not about scaring ourselves – It's about empowerment. Knowledge is power because it allows us to take action to make changes in our lives!

THE CHEMICAL STATE OF AFFAIRS

Sadly, chemicals contaminate every person living in modern society – they are in the air we breathe, the water we drink, the food we eat and the products we put on our bodies. Carpets, mattresses, water bottles, shampoo, makeup, pots and pans, furniture, computers, toys, baby bottles… you name it, most all contain toxic substances that get into our bodies and the environment. We're surrounded by more chemicals today than at any other time in human history. Over 50,000 chemicals have entered daily use since World War II, many of them found in the products we use every day to clean and beautify our bodies and our homes.

So why should we really be concerned about all of these synthetic chemicals that surround us?

Because the growing amount of scientific evidence linking these chemicals to human disease and long-term health effects has become even more convincing than ever, exposure is more widespread than ever, and just because it's legal doesn't mean it's necessarily safe.

- Studies by the Environmental Working Group (EWG) find **over 200 chemical contaminants in the umbilical cord blood of newborn American babies**.[5, 6]
- In October 2013, the American College of Obstetricians and Gynecologists and the American Society for Reproductive Medicine issued a joint statement that scientific evidence over the last 15 years shows that **exposure to toxins before conception and during pregnancy can have significant and long-term effects on the baby's health**.[10]
- The EWG and the Mount Sinai School of Medicine assessed the levels of 219 industrial chemicals in 9 adults with no known previous toxic exposure. **They found 167 chemicals in their blood and urine (average of 91 per person), including 76 carcinogens, 94 neurotoxins, and 79 that can cause birth defects**.[11]
- A 2010 study found that women who used multiple cleaning products in their homes were **up to 110% more likely to develop breast cancer than those who rarely used them**.[12]

There are more chemicals our lives than ever before

In 2010, the President's Cancer Panel reported that nearly 80,000 chemicals are in use in the U.S., and only a few hundred have been tested for safety.[1]

We are bombarded by thousands of chemical toxins on a daily basis — ***so much so that children are now born pre-polluted with dangerous levels of toxins in their bodies.***[5,6,7] While one chemical may not hurt us in a small amount one time, we confront multiple chemicals every day of our lives. From chemicals in personal care and cleaning products, diesel and exhaust fumes on the drive to work, chemicals in air fresheners in offices and public bathrooms and pesticides and heavy metals in food we eat… **after a while the body starts to feel the load.**

These Chemicals End Up in Our Bodies

Unfortunately, many of the chemicals, designed to improve and simplify our lives, do end up in our bodies.

When the Centers for Disease Control and Prevention (CDC) conducted the Fourth National Report on Human Exposure to Environmental Chemicals,[13] they found some pretty shocking results.

On average, the CDC's report ***found 212 chemicals in people's blood or urine***. The chemicals they found included:

- Acrylamide - formed when foods are baked or fried at high temperatures and as a byproduct of cigarette smoke;
- Arsenic - found in many home-building products, treated wood and brown rice;
- Environmental phenols - including bisphenol-A (found in plastics, food packaging and epoxy resins) and triclosan (used as an antibacterial agent in personal care products such as toothpaste and hand soap);
- Perchlorate - used in airplane fuel, explosives, and fireworks;
- Perfluorinated chemicals - used in non-stick cookware;
- Polybrominated diphenyl ethers - used in fire retardants found in consumer products such as mattresses;
- Volatile organic compounds (VOCs) - found in paints, air fresheners, cleaning products, cosmetics, upholstery fabrics, carpets, dry-cleaned clothing, wood preservatives, and paint strippers.

When combined, these chemicals can potentially present a toxic burden to the human body, and **as the CDC has found, can accumulate in the blood, urine, and tissues and interfere with biological processes.**[13]

While our bodies do have detoxification organs (the liver and kidneys) that can process a lot, our bodies were not designed to process or get rid of this multitude of synthetic chemicals. And, because these chemicals are designed to last, when we breath, absorb and ingest them – even in tiny amounts – they can build up in our bodies over time. Research also shows that some people can withstand the toxic chemical cocktail to which we are all exposed better than others – at least partly due to their genetic makeup. But do you really want to play that kind of Russian roulette with your health and the health of your family?

Not to mention that children are exponentially more susceptible to the dangers of toxic chemicals because of their small size and rapid development.

These chemicals do have an effect on our health.

In 2010 The President's Council on Cancer released a 240-page detailed report on the link between cancers and environmental toxins.[1] It's a publication of the National Institutes of Health of the United States government, and referencing hundreds of scientific studies, it discusses how everyday chemical exposures are directly linked to cancer.

This government report has identified the following environmental threats that potentially cause cancer:

- Bisphenol-A (BPA) and phthalates, found in plastics and many personal care products
- Pesticides found in foods, gardens, golf courses and playgrounds
- Exhaust from traffic, cars, trucks, planes
- Pharmaceuticals contaminating the water supply
- Medical tests (chemical and radiation exposure)
- Cell phones (radiation to the head near the brain)
- Toxic Industrial chemicals (toys, food, clothing, building materials, carpets, etc.)

In addition to many of these chemicals being linked to cancer, these and others have been shown to mimic hormones and disrupt the body's delicate endocrine system and may compromise our immune system, central nervous system and respiratory system. These chemicals can cross the placenta and enter unborn babies' bodies through the umbilical cord blood, and exposure to these chemicals during fetal development has been linked to birth defects, autism, hyperactivity, learning disabilities, attention deficit disorder, early puberty, and developmental problems in children. And new research is showing their connection to many chronic diseases including diabetes, heart disease, Alzheimer's disease and autoimmune disorders among others as well as obesity, fatigue, depression, arthritis, muscular pain and short-term memory loss.

Scientists are increasingly concerned that long-term, low-level exposure to certain toxic chemicals creates a variety of health risks.[14,15] They also worry that we do not yet know the impact of living with the cocktail of chemicals found in our daily lives. When testing is done for human health effects, it is normally done on single chemicals in isolation, but in the real world, we are all exposed to a variety of chemicals every single day.

And the scary fact is that many of these chemicals that we come into contact with on a daily basis **have never had adequate safety testing and far fewer have ever been formally tested on humans.**[1] In effect, we are all guinea pigs in this new industrial toxic soup.

There Is a Lack of Laws to Protect Us!

I had assumed that surely "if it was bad for us, the government would not allow it to be sold," and that there must be laws regulating what's in our products to keep us safe, but as I researched this, I was again shocked (and disappointed) to learn that *the current laws, at least in the United States, are sadly outdated and ineffective*.

Up until 2016, the Toxic Substances Control Act of 1976 had never been amended even though it was so weak that it didn't require safety testing of a chemical prior to it being put on the market. But even with the 2016 amendment which thankfully requires that the EPA must make an affirmative finding on the safety of a new chemical or significant new use of an existing chemical before it is allowed into the marketplace, there are thousands of existing chemicals that have never been tested. And the existing federal cosmetics regulation – the Food, Drug and Cosmetics Act of 1938 – cedes decisions about ingredient safety to the cosmetics industry. Under the current law, the FDA doesn't have the power to require cosmetics companies to conduct safety assessments and can't even require product recalls. (The FDA didn't even have the authority under the law to issue a mandatory recall of Brazilian blowout hair straightening products after they were found to contain formaldehyde!)

Here are just a few examples of how we can't assume that just because something is legal, that it's safe… Would we ever think of allowing smoking on an airplane nowadays? Well just remember — it wasn't until 1988 that smoking was first banned on U.S. domestic flights shorter than 2 hours (in other words, up until 1988 it was allowed on every single U.S. domestic flight!). It wasn't until 1990 that it was banned on U.S. domestic flights shorter 6 hours; it wasn't until 1998 that smoking was banned on all U.S. domestic flights, and **it wasn't until 2000 that a federal law was introduced to ban smoking on all flights by U.S. airlines! Similarly, although few would dispute the major health hazards related to exposure to asbestos, the U.S. does not have a comprehensive federal law addressing the issue.** In fact, a number of U.S. policymakers have tried to introduce laws to ban the toxic substance, but they all have failed. **And another example… although the U.S. EPA first announced regulations to limit the amount of lead in gasoline in November 1973, the United States did not fully phase out leaded gasoline until 1996.**

Evaluating and regulating all the chemicals we use in our daily lives is a slow process and past experiences (regulating tobacco, lead in gasoline and pesticides to name a few) indicate that the companies that produce these products won't take attempts to limit their use quietly.

As you can see, we can't assume everything we are exposed to is safe, and toxic chemicals are pervasive and hiding (often in plain sight!). ***BUT in spite of the enormity of toxins that exist around us, it is not too late to make simple changes in our lives that can and will have a profound effect on our health and the health of our families and future generations.***

While we can't control everything that surrounds us, the good news is that we have control over a lot of our environment and lifestyle choices. **You can make simple choices on a daily basis to reduce your exposure and live a healthier life. And you don't have to live like a caveman or cavewoman (I promise!). If you're ready and eager to implement changes that will limit your and your family's exposure to toxic chemicals – then now is the time!**

Your Toxin-Free Action Plan

Are You Ready to Create a Toxin-Free Life and Home? Then, Let's Get Started!

Trust me, I know that it may seem overwhelming – as if you have to be a "Toxin Detective" to be able to make good choices, BUT there are so many simple steps we can take on a daily basis to make changes for the better. And that's why I created this guide! To share some of what I have learned and some simple changes you can make to significantly reduce your and your family's exposure to toxins today. ***So breathe easier (literally!), you are on your way to better overall health and peace of mind when it comes to caring for yourself and your family.***

You definitely don't have to do everything all at once (unless you want to of course!). Just pick a few things and start there! Maybe pick one thing to change each day or each week or tackle one area of your life at a time such as personal care products, kitchen, cleaning etc. or go room-by-room in your house. **Whether you make only a few changes or many, you will be making positive choices for your life.**

To make it even easier, I've divided the toxin-free tips into five key areas where we can reduce toxic exposure:

1. Personal Care Products
2. Food and Beverage: Preparation, Storage and What to Eat and Drink
3. Around the Home
4. Cleaning Products
5. Travel, Office and Daily Activities

We can easily reduce our toxic load by making better choices with respect to the products we bring into our homes, put in our bodies, slather on our skin and expose ourselves to on a daily basis. By taking it one section at a time, we can make small changes that are easy to implement and stick to!

You have the power. And I'm so excited to have you join me in the toxin-free journey to protect yourself and your family and live your best and healthiest life!!

Section 1: Personal Care Products

> *"... the harmful chemicals that you apply to your skin are much more toxic and pose greater cancer and other risks than if you eat them."*
>
> --Dr. Samuel Epstein, *Toxic Beauty*, Former Chair of Cancer Prevention Coalition

When you get up in the morning just think about how many personal care products you use… shampoo, conditioner, soap, body wash, toothpaste, shaving cream, lotions, hair styling products, perfumes, makeup, deodorant… And sadly, these are often loaded with toxins. According to a survey of more than 2,300 people led and conducted by the Environmental Working Group (EWG), the average woman uses 12 personal care products per day and the average man uses 6; exposing their bodies to about 126 different chemical ingredients every day from personal care products alone.[16]

And the chemicals in your personal care products do end up inside your body. Many people believe that the skin is an effective barrier to toxins, but what we put on our skin all too often gets into the bloodstream. (Just think about nicotine and birth control patches). From there they are carried to various organs, including the brain, liver and kidneys, where they may have immediate or long-term effects. And often, chemicals are added to personal care products with the specific purpose of increasing their absorption.

Not to mention the chemicals that we ingest from products applied on or in our mouths such as lipstick, lip gloss, toothpastes and mouthwash, or those that we inhale when perfumes or hairsprays are sprayed. Lung tissue is even less of a protective barrier than the skin – it's very thin and allows the passage not only of oxygen, but also of many other chemicals *directly into the blood*. Once in the blood, these inhaled chemicals pass to the heart and are then distributed to other organs without first passing through the detoxification process of the liver. In addition to causing damage throughout the body, chemicals that pass through the lung surface may injure lung tissue and interfere with its vital role of oxygen supply.

On the next page is a list of some of the most problematic chemicals to watch out for in personal care products. These are commonly found in many commercial personal care products and have been linked to a number of health problems. I know it's a long list, but I wanted to make sure you are armed with the knowledge so that you can recognize them at a glance and weed out suspicious products.

But don't worry! You don't have to memorize all of these! I've also provided my "Ingredients to Avoid" quick guide that lists some of the most common toxic ingredients you'll find as well as their various names. You can stick it in your purse or car and take it with you when shopping. Plus, I've provided some of my favorite REALLY simple tips for to avoiding these toxic ingredients without having to memorize this long list!

INGREDIENTS TO AVOID IN PERSONAL CARE PRODUCTS

Some of the Most Toxic Ingredients to Watch Out for in Your Personal Care Products:
**Note: There may be others that you want to avoid, but these are lots of the biggies! For more information on any specific chemical you see on a product label, search the EWG's Skin Deep Database.*

Ceteareths and EDTA: When you see ceteareth on the label it is usually followed by a number like 12, 20 or 30. Ceteareths are used as emulsifiers and thickening agents in deodorants, conditioners, lotions, cleaners, body wash and shampoo. The scary thing about ceteareth is that it is a 'penetration enhancer' – this means that it changes the skins structure to allow other chemicals to penetrate deeper into the skin thereby increasing the amount of these chemicals that get into the bloodstream. EDTA is another penetration enhancer found in shampoo and body wash. Like ceteareths, these are dangerous because they allow other chemicals to penetrate deeper into the skin and reach the bloodstream.

DEA (diethanolamine), MEA (monoethanolamine) and TEA (triethanolamine): DEA, MEA and TEA are additives used in a range of personal care products. DEA and TEA are known to combine and react with other ingredients to form cancer-causing nitrosamine chemicals. Repeated skin application of DEA was found to cause liver and kidney damage in animals. Researchers have also discovered that when absorbed through the skin, DEA accumulated in organs. TEA, which is also used as a fragrance ingredient, is toxic to the skin, and to the respiratory and immune systems.

Parabens (methyl-, butyl-, ethyl-, propyl- and isobutyl-): Parabens are used as preservatives and germicides in a wide range of personal care products. They are nicknamed 'gender benders' because they mimic the female hormone estrogen and are thought to be partly responsible for the decrease in male fertility and rise in testicular cancer since the 1950s. Parabens are also known carcinogens. They are absorbed through the skin and have even been found in biopsied tissue from breast cancer tumors! They are banned in Japan and Sweden and under review in the U.K. (Grape seed extract and rosemary extract are natural alternatives to paraben preservatives).

Phthalates (DBP, DEP, DEHP) (often included under the term "Fragrance" or "Perfume on labels): Phthalates are found in many products from soft plastics and air fresheners to shampoos and nail polish. A 2002 study found phthalates in over 70% of the 72 products they tested, including hair gel/hair spray, body lotion, fragrances, and deodorant.[17] Research has shown that phthalates disrupt the hormonal system and interfere with reproduction. Multiple studies have showed that pregnant women exposed to high phthalate levels are more likely to give birth to baby boys with altered genital development.[18, 19, 20]

Dibutyl phthalate (DBP) is one of the most often used phthalates. DBP has been banned in Europe, but not the United States. DBP is toxic to the liver and kidneys, mimics the hormone estrogen and has been linked with reproductive and developmental problems (not to mention skin allergies). U.S. women of child-bearing age have been found to have high levels of DBP.[21]

Another is diethyl phthalate (DEP). A 2002 study in the journal *Environmental Health Perspectives* found that DEP damages the DNA of sperm in adult men at current levels of exposure.[22] While the EU has banned DBP and another phthalate DEHP from use in cosmetics, in the US there are no restrictions on any phthalates in cosmetics. In addition, phthalates are difficult to avoid because they are generally not listed as ingredients on labels because they can be included under the ingredient of "fragrance".

Polyethylene glycol (PEG): The same chemical PEG that is found in many personal care products, such as body washes, liquid soap, baby wipes, sunscreens and shampoo, is also used in caustic spray-on oven cleaners! PEG may be contaminated with 1,4-dioxane, a probable carcinogen, and ethylene dioxide, a known human carcinogen. 1,4-dioxane readily penetrates the skin, and is considered unsafe for injured or damaged skin.

Propylene glycol (PG): Propylene glycol is widely used in many personal care products, including moisturizers, facial cleansers, foundations, shampoos, lotions, deodorants, toothpastes, and baby wipes. Propylene glycol can cause dermatitis and irritation to the skin and eyes. It is recognized as a neurotoxin by the U.S. National Institute for Occupational Health and Safety, and it may cause kidney damage. The Material Safety Data Sheet for propylene glycol warns workers handling this chemical to avoid skin contact… and yet it's in the stuff we rub all over ourselves! Because of its ability to quickly penetrate the skin, the EPA considers propylene glycol so toxic that it requires workers to wear protective gloves, clothing, and goggles when working with it and disposal by burying and warns against skin constant to prevent brain, liver and kidney abnormalities… so why is it allowed in our personal care products??? *The concentration of PG in deodorants is often greater than that in most industrial applications!*

Sodium lauryl sulfate/sodium laureth sulfate/sodium dodecyl sulfate: These chemicals are used in car washes, garage floor cleaners, and engine degreasers, and also 90% of personal care products as a foaming agent. In clinical testing they are used to purposely irritate the skin and have been banned in Europe and Canada. In addition to skin rashes, they are known to cause allergies and are known to affect the brain, heart, liver and other organs; and they also break down the skin's protective barrier making it easier for other chemicals to get deeper into the body. Sodium lauryl sulfate also enhances the allergic response to other toxins and can react with other ingredients to form cancer-causing agents called nitrosamines.

Synthetic Fragrances: In addition to perfumes and colognes, synthetic fragrances are found in lotions, shampoos, soaps, etc. The terms, "fragrance", "perfume" or "parfum" on a label can indicate the presence of a multitude of toxic ingredients, many of which are known, proven or suspected carcinogens including phthalates, toluene (which can cause liver, kidney and brain damage as well as damage to a developing fetus) and neurotoxins.[23] Fragrance is also a known trigger of asthma and symptoms reported to the FDA have included headaches, dizziness, rashes, skin discoloration, violent coughing and vomiting, and allergic skin irritation.

Artificial colorings (FD&C, D&C): Artificial colorings are made from coal tar and petroleum and are identified with the letters FD&C or D&C. We want to avoid them because they often contain heavy metals such as lead and mercury that deposit on the skin. Many people experience allergic reactions like skin irritation and contact dermatitis and there is evidence suggesting that certain coal tar colors cause cancer -- D&C Blue 1, D&C Green 3, D&C Red 4, and D&C Yellow 5.

Toxic Preservatives like BHT and BHA: BHA and BHT are used as a preservative in a variety of personal care products, and like parabens they have been nicknamed 'gender benders' because they mimic the female hormone estrogen. They are thought to be partly responsible for the decrease in male fertility and for the rise in testicular cancer since the 1950s.[24] BHA can also trigger allergic skin reactions and is "reasonably anticipated to be a human carcinogen" by the U.S. National Toxicology Program. It is also used in fragrances, although this use is not allowed in the European Union because it can cause skin depigmentation.

Toluene: Toluene is a solvent found in nail polish and nail hardeners, dyes, perfumes and other cosmetics. But it will rarely be found on the ingredient label even though it may constitute over half of the volume of the product!! It is also listed on labels as methylbenzene or toluol. Toluene can cause of liver, kidney and brain damage and is a known reproductive toxin that can damage a developing fetus. Exposure to toluene has also been linked to irritation of the eyes, throat and lungs, loss of muscle control, brain damage, headaches, dizziness, memory loss and speech and vision problems.

Formaldehyde and Ureas (DMDM Hydantoin; Diazolidinyl and Imidazolidinyl urea): DMDM hydantoin, diazolidinyl urea and imidazolidinyl urea are commonly used preservatives that slowly release formaldehyde -- a known carcinogen. Ureas are found in lotion, shampoo, conditioner and body wash and are toxic to the liver and kidneys and can trigger an immune response that includes itching, burning, scaling, hives and blistering skin.

Triclosan and tricarban: Triclosan is a derivative of the herbicide 2,4-D and is found in almost every antibacterial soap or cleanser and hand sanitizer as well as many toothpastes, mouthwashes and deodorants. Even with tiny amounts it is a known hormone disruptor and has been restricted in cosmetics in Canada and Japan. It has also been shown to cause allergic skin responses. It also reacts with chlorine in tap water to form chloroform and dioxin, both suspected carcinogens. Triclosan has even been detected in human breast milk, and in 75% of human tissue samples taken, demonstrating widespread exposure.[25]

Skin lighteners containing Hydroquinone: Hydroquinone is a skin-bleaching chemical found in many skin lightening products, and is considered to be one of the most toxic ingredients allowed in cosmetics. Hydroquinone can cause a skin condition called ochronosis with irreversible blue-black lesions on the skin. It has also been linked to developmental and reproductive problems and is not permitted for use in cosmetics in some countries. *(It can also be labeled as: 1,4–benzenediol; 1,4– dihydorxybenzene; P-dioxybenzene; 4-hydroxyphenol; P-hydroxyphenol or 1,4benzenediol – these names indicate it's chemical structure).*

Antiperspirants that contain aluminum, parabens, propylene glycol, phthalates and/or triclosan: These chemicals are way too close to the breast tissue when in the armpits! A 2005 British study, published in the *Journal of Inorganic Biochemistry*, found that aluminum-based compounds in deodorants may be absorbed by the skin and cause estrogen-like effects.[26] Because estrogen has the ability to promote breast cancer cells, some scientists have suggested that the aluminum-based compounds in antiperspirants may contribute to the development of breast cancer. A 2003 study in the *European Journal of Cancer* found that women with breast cancer who shaved their armpits and applied deodorant regularly were diagnosed with breast cancer 19 years earlier than those who did neither.[27] (Not saying you have to go all au natural, but just choose a safer brand of deodorant/antiperspirant!).

Chemical sunscreens containing oxybenzone, avobenzone, benzphenone, ethoxycinnnamate, PABA, and a host of other dangerous chemicals: There is scientific evidence suggesting that oxybenzone is a hormone disruptor, may be toxic to the nervous system and may damage DNA and growing cells. Two companion studies in 2008 conducted by the Mount Sinai School of Medicine and the Centers for Disease Control found that oxybenzone exposure to pregnant women was associated with low birth weight baby girls and that is detected in 97% of people tested in the U.S.[28]

Naturopathic Ways

Quick Guide for Safer Personal Care Products
INGREDIENTS TO AVOID

Parabens *Avoid*: • Propylparaben • Isopropylparaben • Butylparaben • Isobutylparaben • Methylparaben • Ethylparaben *Danger*: Endocrine disruptors (mimic estrogen), linked to breast cancer, hormone imbalances & neurotoxicity	**Phthalates & Fragrance** *Avoid:* • Dibutyl phthalate (DBP) • Diethyl phthalate (DEP) • Di(2-ethlhexyl) phthalate (DEHP) • Fragrance • Perfume or Parfum *Danger:* Phthalates: endocrine disruptors, possible carcinogen; Fragrances: contain hundreds of undisclosed chemicals
DEA, MEA, TEA *Avoid:* • Diethanolamine • Monoethanolamine • Triethanolamine • Cocomide DEA • Lauramide DEA *Danger:* Hormone disruptors; possible carcinogens, may react & form cancer-causing nitrosamines; easily absorbed through skin to accumulate in body	**PEG and Ceteareths** *Avoid:* • "PEG" (Polyethylene glycol) • PEG-100 Stearate & Cetyl PEG • Ceteareth, Oleth, Myreth *Danger:* Known carcinogens; release toxic 1,4-dioxane as byproduct of manufacturing; ceteareths also enhance penetration of other chemicals on skin
Sulfates *Avoid:* • Sodium Laurel Sulfate (SLS) • Sodium Laureth Sulfate • Sodium Dodecyl Sulfate *Danger:* Eye and skin irritant, can combine with other ingredients to form carcinogenic nitrosamines	**Triclosan** *Avoid:* • Triclosan/Tricarban • Microban *Danger:* Classified as a pesticide (restricted in Canada and Japan); associated with endocrine (hormonal) toxicity, cancer, and may encourage growth of drug-resistant bacteria
Artificial Colors and Dyes *Avoid:* • FD&C (color) • D&C (color) • Coal Tar • Aminophenol • Diaminobenzene • P-phenylenediamine *Danger:* Linked to cancer and contain heavy metal impurities (arsenic & lead)	**Formaldehyde & Urea** *Avoid*: • Formalin • Formic Aldehyde • Methanal • Methyl Aldehyde • DMDM hydantoin • Diazolidinyl & Imidazolidinyl Urea *Danger:* Known carcinogen also linked to asthma & neurotoxicity
BHA & BHT *Avoid:* • Butylated hydroxyanisole (BHA) • Butylated Hydroxytoluene (BHT) *Danger:* Probable carcinogen & endocrine disruptors. EU prohibits BHA in fragrances.	**Propylene and Butylene Glycol** *Avoid:* • Propylene glycol (PG) • Butylene glycol • Hexylene glycol *Danger:* Can cause contact dermatitis & irritation to eyes, skin and mucous membranes; EPA considers PG toxic and warns against skin contact

***PRINT, CUT, FOLD AND PLACE IN YOUR PURSE OR WALLET FOR EASY REFERENCE. HAPPY AND SAFE SHOPPING!**

 www.naturopathicways.com

Well, that's just a list of some of the most problematic chemicals… As you can see, many chemicals have multiple different chemicals names. Even more problematic is the fact that many chemicals are not even required to be listed on the label! Plus, the terms and labels on products can be misleading. The terms "non-toxic" and "natural" are not regulated at all, and many products are being marketed as natural and/or organic but have chemical ingredients that raise health concerns.

Of course you can read the labels to check for toxic ingredients, BUT since there are so many ingredients to watch for (and some ingredients won't even be listed), I know from personal experience that this is not an easy task!

So here are some simple ways that you can easily choose safer personal care products without being a chemical engineer or toxin detective!

TIPS FOR FINDING SAFER PERSONAL CARE PRODUCTS

1. **Carry your "Personal Care Products: Ingredients to Avoid" quick guide with you while you shop.**

2. **Visit the EWG Skin Deep Database.** I like to use the Environmental Working Group's SkinDeep database to check my products. www.cosmeticsdatabase.com

   The EWG is a non-profit organization that specializes in providing useful resources to consumers while simultaneously pushing for national policy change. Their searchable database rates over 40,00 products on a scale of 0 (safe) to 10 (harmful). It lists all of the ingredients and gives a toxicity score for each ingredient as well as an overall toxicity score for the product.

   Personally I try to stick with those products that have an overall score of 3 or lower (of course, 0 and 1 are preferable!). If you find any of yours are rated 5 or higher, consider replacing them with safer products.

   Remember, even if a product says "non-toxic," "natural" or "organic", it is still important to read the labels or check the EWG SkinDeep database. I have been fooled by the "all natural" label more than a few times.

3. **Buy Products from Websites and Brands that You Know Carry Safer Products.**

   - **Beautycounter:** Beautycounter is a great online site dedicated to providing safer personal care products. They are committed to a health and safety standard that goes well beyond what is legally required in the United States. They even have what they call The Never List™ which is made up of more than 1,500 questionable or harmful chemicals that they never use as ingredients in their products. This includes the over 1,400 chemicals banned or restricted in personal care products by the European Union, plus additional chemicals screened by Beautycounter and found to be of concern. They have everything from skincare, markeup, bath & body and kids products! https://www.beautycounter.com

- **Annmarie Gianni Skin Care**: made from organic, natural and wild-crafted ingredients http://www.annmariegianni.com
- **100% Pure**: Makeup, SkinCare, Hair and Bath and Body products using all natural, organic and vegan ingredients (and lots of great smelling fruits!) https://www.100percentpure.com
- **Dr. Bronner's Soaps**: Can be found at most national grocery and pharmacies (and I even saw it at Costco recently!). https://www.drbronner.com
- **The Honest Company:** All-natural, non-toxic and hypoallergenic, the Honest Company has a multitude of personal care products including shampoo, condition, body wash, toothpaste, sunscreen, deodorant and more! https://www.honest.com/bath-and-body
- **Soleo Organics**: They have a great sunscreen that was actually voted #1 by the Environmental Working Group's Skin Deep Database. http://www.soleoorganics.com

4. **Use Fewer Products.** Even if your products only have a small amount of harmful chemicals, these can build up in your body over time, so the fewer products you use, the lower your exposure.

5. **Make Your Own Products (Many Ingredients You Can Find in Your Kitchen!).** Coconut oil, olive oil and jojoba oil make great skin moisturizers (especially while you sleep at night); a bit of apple cider vinegar with water is great for adding shine to your hair and using as a face toner; and organic essential oils are great replacements for toxic synthetic perfumes! There are also TONS of great recipes for all-natural beauty and personal care products online. Just search "homemade shampoo," "homemade face wash" etc.

6. **Make a Change One Product at a Time and Start with the Most Problematic Ones.** If you don't want to throw out all of your products that have ingredients on the "Ingredients to Avoid" list now – then start by replacing products as you run out or replace those that are most problematic (see the list below).

   Next is a list of products that are most important to buy toxin-free:
   (1) Products you might ingest, (2) Products you might inhale, (3) Products that stay on your body (don't get rinsed off quickly), (4) Nail products, (5) Dark hair dyes, (6) Skin lighteners and (7) Antibacterial products. These are the products you should replace with toxin-free versions first because of the way they are used or the chemicals they tend to contain.

Most Important Products to Avoid or Use Toxin-Free

Below are the products you should replace with toxin-free versions first because of the way they are used or the chemicals they tend to contain.

Anything You Might Ingest

- ***Lip balm, Lipstick, Toothpaste, Mouthwash.*** Some lip products contain lead, parabens, and other potentially toxic ingredients. In a 2005 lawsuit, Proctor & Gamble conceded that Crest toothpaste contained high levels of lead. Others contain triclosan, a hormone-disruptor, and sodium lauryl sulfate, which increases risk of mouth sores! Anything you put near or in your mouth is very likely to be ingested. ***Opt for lip care products made from vegetable-based dyes (100% Pure has some great ones). For toothpaste and mouthwash, I really like Earthpaste (made from all-natural food grade ingredients and no triclosan) and Desert Essence fluoride free products.***

Anything You Might Inhale

- **AVOID HAIRSPRAY:** Hairsprays (especially aerosol sprays) contain VOCs among other chemicals and release tiny particles that are inhaled deeply into the lungs**.** ***Go without hairspray or if you must use spray, try to find pump sprays rather than aerosols and look for those with few ingredients and made from vegetable products.***

- **AVOID SYNTHETIC PERFUMES: Avoid all the perfumes you buy at the department stores! They are full of a soup of unregulated chemicals.** Research conducted by the Environmental Working Group (EWG) and the Campaign for Safe Cosmetics found an average of 14 chemicals in 17 name brand perfume fragrance products. But it doesn't stop there — none of these chemicals were actually listed on the label. In general, there at least 3,000 ingredients that could possibly be used to form a product's scent. That's according to the online "Transparency List" put out by the International Fragrance Association, an industry trade group. It may seem unbelievable, but the FDA does not even currently require fragrance and cosmetic makers to disclose exactly what they are using to scent products. Many will say that their formulas are proprietary and they don't want other companies copying them. ***Instead of perfumes, organic essential oils are a great option***.

- **DON'T USE SPRAY SUNSCREENS:** You don't want to be inhaling the chemicals and nanoparticles – we want them on our skin! ***Just apply it the old-fashioned way and use brands that just contain zinc oxide. See the EWG's Guide to Sunscreen at https://www.ewg.org/sunscreen/***

Anything that Stays On Your Body For Long Periods of Time

- ***Moisturizers, lotions, face creams, foundations, antiperspirants and deodorants.*** These things that sit on your skin for long periods of time are much more likely to be absorbed

and in larger amounts than those you rinse off. And, most commercial antiperspirants usually contain aluminum, parabens, propylene glycol, phthalates and/or triclosan: these chemicals are way too close to the breast tissue when in the armpits**!** ***Look for brands that specifically state they don't contain these chemicals – if you having a question, EWG's SkinDeep database is a great place to start (you can just search for deodorants etc.).***

Nail Products

- ***Polish, cuticle removers, nail polish remover.*** There is no question that nail products contain some of the most toxic ingredients in the cosmetics industry: phthalates (DBP), formaldehyde, toluene, acetone, resins, and methylacrylates to name a few and many are not required to be listed on the label. ***Try to buy toxin-free nail products (look for brands that state they are free of toluene, formaldehyde and phthalates), apply them in a well-ventilated room and bring your own toxin-free polish with you if you go to a nail salon for a manicure or pedicure.***

Permanent Hair Dyes – Especially Dark Hair Dyes

- These contain toxic ingredients that have been linked with cancer – the main concern is with a family of chemicals called arylamines that are a known risk factor for bladder cancer. A 2001 study from the University of Southern California actually found that women who use permanent hair dyes once a month for one year or longer have twice the risk of bladder cancer and those who used them monthly for fifteen years or more have three times the risk![29] And further research showed that the use of dark colors doubled a person's risk of certain blood cancers including non-Hodgkin's lymphoma.[30] ***Look for safer brands and try to use them less frequently. Certified organic henna is a very good alternative to commercial hair colors.***

Skin Lighteners with Hydroquinone

- Avoid skin lighteners that don't specify they are free of hydroquinone. Hydroquinone has been shown to be carcinogenic and can cause a skin condition called ochronosis with irreversible blue-black lesions on the skin. It has also been linked to developmental and reproductive problems and is not permitted for use in cosmetics in some countries**.** ***A safer option for skin lightening is kojic acid.***

Antibacterial Soaps, Wipes, Gels etc. – Anything with Triclosan

- Triclosan is actually classified as a pesticide, is a known hormone disruptor even in tiny amounts, can create carcinogenic by-products when it reacts with chlorine in tap water. The FDA has asserted that there is no evidence that antibacterial products protect us any better than regular soap and they may be causing antibiotic resistance. ***So choose products that are triclosan-free – there are lots of great options made from vegetable ingredients and essential oils.***

Section 2: Food and Beverage: Food Preparation, Storage and What to Eat and Drink

Unfortunately, the tools we use in the kitchen, the food we eat and the water and other beverages we drink can also be a source of toxins. Hippocrates, the father of medicine, said, "Let food be thy medicine and medicine be thy food." A key foundation for staying healthy in a toxic world is proper nutrition – including what we eat, how we prepare it and how we store it. Of course this is often easier said than done… pesticides and GMOs sneakily creep up everywhere, preservatives and food additives are routinely added during the processing of foods to make it last longer and taste better, and even the packaging materials may contain toxic ingredients. **BUT, there are simple ways we can make some changes to reduce the toxins we ingest through our food and drink!**

TIPS FOR TOXIN-FREE FOOD AND BEVERAGE

Storage and Preparation

1. **Avoid Plastic Food and Beverage Containers and Plastic Wraps**. Even BPA-free plastics can leach harmful chemicals into your food including other bisphenols, phthalates, and carcinogenic and endocrine-disrupting toxins.[31] ***Instead choose glass food storage containers for refrigerator, freezer and pantry storage and use glass or stainless steel water bottles. For babies, use glass or BPA-free plastic baby bottles. I also love mason jars for storage – they come in all sizes and shapes (the small ones with wide mouths make amazing containers for little snacks to take on the go instead of using plastic) and you can buy inexpensive BPA-free storage lids to go with them.***

2. **If You Do Use Plastic, Keep It Out of the Microwave and Dishwasher!** Never heat food in plastic of any kind (plastic Tupperware, plastic wrap, Ziploc bags etc.) – not even BPA-free plastic AND not even if it says "microwave safe"! When plastic is heated, it leaches more chemicals. ***Instead if you choose to microwave, use safe glassware or lead-free ceramic containers.*** And the hot water and detergents in the dishwasher causes plastic to degrade and release toxins even faster. Food types also have an effect – acidic and oily foods cause the release of more toxins (many plastics are highly fat soluble). So if you do choose to use plastic for food storage, try to use it for dry foods and replace them often.

3. **Avoid Non-Stick and Teflon Cookware Including Pots, Pans, Bakeware Etc.** Honestly, It's hard to believe that this product is still on the market considering the warnings from the EPA about its toxicity! Nonstick cookware and Teflon contain perfluorooctanoic acid (PFOA), which can leach into food (especially at high heat) and releases toxic fumes into the air during use. PFOA is the most persistent synthetic chemical known to man, and is found in the blood of nearly every person tested.[32] An EPA advisory panel reported that PFOA is a "likely carcinogen" in humans,[33] and, in addition to cancer, it has been linked to liver damage, growth

defects, immune system damage and death in lab rats and monkeys. In the past 25 years, the toxic fumes released from heated non-stick cookware has been shown to be deadly to birds, with many hundreds of pet birds dying every year from "Teflon toxicosis".[34, 36] Even more scary is that DuPont's own scientists have admitted that polymer fume fever in humans is possible at 662°F, a temperature easily exceeded when a pan is preheated on a burner or placed beneath a broiler.[35, 36] No amount of time or stuck-on food is worth it!! ***Instead try to use cast iron or stainless steel pots and pans and lead-free glass or ceramic bakeware.***

4. **Don't Cook or Wrap Foods in Aluminum Foil.** Even though the research linking aluminum to chronic long-term health problems is debated, scientific studies have found potential connections between aluminum exposure and Alzheimer's disease,[37, 38] certain cancers, and infertility.[39] So, I believe it's best to be better safe than sorry. Also, studies clearly show that when aluminum foil is in contact with food, small amounts of aluminum from the foil leach into the food (especially when the foil is heated and when in contact with oily and acidic foods that increase its breakdown rate). For example, in one study conducted in Italy about 2-6 milligrams of aluminum was found to move over into food from aluminum foils, cookware, and utensils.[40] Even if this amount has not been shown in the scientific literature to pose health harm, I prefer to keep my food as free as possible from a potentially problematic metal. And, lastly, aluminum foil mining, manufacturing and disposal is really bad for the environment (it's actually on the U.S. federal government's list of priority toxins) – so the less we use and buy the better! So while aluminum foil may be convenient in the kitchen, I think that doesn't outweigh its downsides. (Also try to avoid aluminum from food additives such as pickling agents (alum), anticaking agents (aluminum silicates), baking powders (sodium aluminum sulfate), and baking mixes (sodium aluminum phosphate).

5. **Use Lead-Free Glassware.** Ever heard of lead crystal, those expensive crystal glasses that literally sparkle? They sparkle because they contain lead oxide and the lead ions will leach into your food and drinks. A 1996 study found that beverages stored in lead crystal accumulated significant amounts of lead.[41] Most glassware produced after 1990 for food is lead-free, but if you have older lead crystal glassware or decanters (inherit any from grandma?), you should just use them for show.

6. **Use Lead-Free and Food-Safe Ceramic-ware.** Also try to find lead-free ceramics. Lead from ceramic glazes can easily enter food. Ceramic-ware made outside the U.S. is particularly risky – the FDA even advises against the use of ceramic cookware from Mexico, China, India and Hong Kong. And avoid storing acidic foods (tomato sauce, vinegar dressings, etc.) in ceramic ware. If you buy mugs, make sure they state that they are lead-free and NEVER use a ceramic piece labeled "For decorative purposes only" for your food or drinks (surprisingly, many mugs out there actually have this warning but it's not well-known!).

Food and Beverage

1. **Avoid Canned Food and Beverages**. Sadly, most food and drink cans (including liquid infant formula!!) are lined with BPA that leaches into the food/drinks (especially oily and acidic foods like fish and tomatoes). And studies prove this. A 2011 study by Harvard researchers found that people who ate one serving of canned food daily over the course of five days had a greater than tenfold increase of BPA in their urine,[42] and another study published in December 2014 in the American Heart Association journal *Hypertension* found that when people drank soy milk from a can just one time, the levels of BPA in their urine rose dramatically within two hours – and so did their blood pressure, but on days when they drank the same beverage from glass bottles that don't have BPA linings, there was no significant change in their BPA levels or blood pressure.[43] In addition to hypertension, BPA has been associated with hormone disruption, reproductive problems, hyperactivity in children, cancer, heart disease and other health problems. ***Try to cook with fresh or frozen food whenever possible and if you need to choose canned, look for cans labeled as having a BPA-free lining.***

2. **Try to Buy and Eat Organic Produce.** Sadly, conventional produce is filled with pesticides. According to a recent Stanford paper, 38% of conventional produce had toxic pesticide residues on them in potentially harmful amounts.[44] Of the *hundreds of pesticides still in use today*, many are proven to cause cancer, birth defects, neurological disorders, autoimmune disorders and hormone disruption – *and they can cause these problems even at low level.*[45] Eating organic fruits and vegetables can significantly reduce the level of pesticides in your body. **A 2003 study at the University of Washington compared a group of 18 children who ate organic food with 21 children who ate conventional produce and found that the children who ate organic food had six to nine times less pesticide metabolites in their bodies!**[46] A 2005 study also demonstrated that in as little as 15 days, children adopting a primarily organic diet experienced a dramatic decrease in urinary concentrations of pesticides.[47]

   Buy organic when you can! Luckily many companies are making it much more affordable now that more people are looking for it. Another option is to shop at your local farmer's market if you have one (you can usually find cheaper and often fresher produce). But always be sure to ask if it is pesticide-free. I spent a year buying product from a stand at a farmer's market thinking it was organic only to later find out it was conventional and sprayed with pesticides. Many small farmers at the markets won't have an organic certification because it's expensive to get one, but they will tell you if they do or don't use pesticides.

3. **Speaking of Organic… Get to Know the Dirty Dozen and Clean Fifteen**. While switching to all organic food may not be possible, knowing which crops have the highest levels of pesticides can help a lot. Each year the Environmental Working Group provides lists of fruits and veggies that have the have the highest amounts of pesticides (the 'Dirty Dozen'), which should be purchased in organic form whenever possible, and those that have the lowest amounts of pesticides (the 'Clean Fifteen'), which are less critical to buy organic. ***Whenever you buy conventional produce be sure to wash thoroughly – a fruit and vegetable wash made from vinegar and water works very well.***

   **Note: The list of the Dirty Dozen and Clean Fifteen changes annually, so be sure to check the EWG's website at http://www.ewg.org/foodnews/

   Dirty Dozen – BUY THESE ORGANIC (they actually listed 14 this year!):
   - Apples
   - Strawberries
   - Grapes
   - Celery
   - Peaches
   - Spinach
   - Sweet bell peppers
   - Nectarines (imported)
   - Cucumbers
   - Cherry Tomatoes
   - Snap Peas (imported)
   - Potatoes
   - Hot Peppers
   - Kale/Collard Greens

   Clean 15 – Lower Pesticides, Ok If You Can't Get Organic:
   - Avocados
   - Sweet Corn* **(Try to buy organic to avoid GMOs)**
   - Pineapple
   - Cabbage
   - Sweet Peas (frozen)
   - Onions
   - Asparagus
   - Mangos
   - Papayas* **(Try to buy organic to avoid GMOs)**
   - Kiwi
   - Eggplant
   - Grapefruit
   - Cantaloupe
   - Cauliflower
   - Sweet Potatoes

4. **Avoid GMOs**. There are still many questions about the safety of consuming genetically modified foods. ***All of the European Union nations as well as Japan, China, Australia, New Zealand and many other countries have mandatory labeling of foods that contain GMOs.*** The growing body of evidence that GMOs are dangerous prompted the American Academy of Environmental Medicine (AAEM) to publicly warn that "it is biologically plausible for Genetically Modified Foods to cause adverse health effects in humans."[48] ***So try to buy products that state that they are free of GMOs (certified organic foods are required to be GMO free), and especially buy organic and/or GMO-free versions of those foods that are most often genetically modified. The top GMO foods are soy, corn (including high fructose corn syrup, sugar beets (most sugar is made from this), canola oil, cottonseed oil, alfalfa, zucchini, yellow squash and papaya.***

5. **Avoid Artificial Sweeteners and products containing them (this includes Diet Coke)!** There is so much data now linking artificial sweeteners to a range of negative health impacts. This includes aspartame (NutraSweet, Equal), sucralose (Splenda), saccharin (Sweet'N Low), acesulfame potassium, neotame, and others. Check your food labels at home and throw out everything that has on its label: Aspartame, Acesulfame Potassium (K), Saccharin or Sucralose, NutraSweet®, Splenda®. Avoid products that are labeled "low calorie," "diet," "sugar free," or "no sugar added" since they all likely contain sugar additives. Drink purified water instead of diet drinks. If you need a sweetener, use small amounts of natural sweeteners like raw, organic honey*, organic black strap molasses, coconut nectar or stevia (*don't use Truvia which contains lots of chemical additives).*

6. **Eat and Drink FRESH Food and Beverages.** Avoid sodas and processed and packaged foods as much as you can as these can contain all sorts of bad stuff including chemical additives, and artificial colorings and flavorings. As for those artificial colors, Blue, Green 3, and Yellow 6 are the worst of the colorings and have been linked to numerous forms of cancer, along with hyperactivity and other behavioral problems in children.[49]

7. **Filter Your Tap Water.** Unfortunately, depending on where you live any number of contaminants may be present in your tap water including chemicals from industrial waste, pesticides, fertilizers, pharmaceuticals, plasticizers, chlorine, and heavy metals… not to mention fluoride. ***At a minimum, use a water filter in the kitchen for the water you drink and cook with. There are LOTS of different ones out there. You can check out the Environmental Working Group's online database to see the contaminants that are in your water and to get help choosing a filter that best fits what you are looking for and that will remove those specific toxins!***

8. **Avoid Non-Organic Animal Products.** Non-organic meat, dairy products and eggs are shown to have higher levels of antibiotics, hormones and pesticides.

   First let's talk about the bacteria and antibiotics. **An extremely high percentage of all the flesh from the chickens, turkeys, cows, fish and pigs killed every year in the U.S. for food is contaminated with *E. coli*, campylobacter, listeria, or other dangerous bacteria that live in the intestinal tracts, flesh, and feces of animals.** To counteract these bacteria as well as to prevent them from dying from all of the diseases that are rampant in factory farms and cause them to grow faster, high amounts of antibiotics are fed to all of the animals. Unfortunately, the antibiotics don't just disappear. They remain in the animal' bodies and humans consume them when they eat animal products, encouraging the development of new strains of antibiotic-resistant super-bacteria. But that's not the only danger associated with the high amounts of antibiotics given to these animals. Roxarsone, an antibiotic commonly used on factory farms, contains significant amounts of the most carcinogenic form of arsenic. **USDA researchers have found that eating 2 ounces of chicken per day—the equivalent of a third to a half of a boneless breast—exposes a consumer to 3 to 5 micrograms of inorganic arsenic, which is the most toxic form of arsenic.** Daily exposure to low doses of arsenic can dramatically increase the risk of cancer, dementia, neurological problems, and other ailments in humans.

   To add to the bacteria and antibiotics there are also high amounts of hormones in meat and milk. According to the USDA, by 1999, roughly 99 percent of cows on large feedlots in the U.S. were given synthetic hormones. These hormones, which make cows grow larger and produce more milk than they would naturally produce, are prohibited for over-the-counter use by humans in the United States. However, if humans eat most meats, they are still getting the banned hormones. Scientists have clearly shown that these hormones can increase the risk of disrupted development, cancer in humans, and development of other disorders, including gynecomastia (enlarged male breasts). **In spite of all the evidence of the hormones' harmful effects on human health, the FDA refuses to adequately regulate their use to promote growth in cows. So when you eat meat from these cows or drink milk, you are consuming potentially unsafe drugs that are not intended or allowed for humans. Some health-conscious consumers buy organic milk and organic beef because they think it's hormone-free, but they are mistaken**. Despite its label, "organic" meat from cows is often treated with hormones—when inspectors in the European Union randomly sampled "hormone-free" beef from the U.S., they found that 12 percent of the meat had been treated with powerful hormones that are banned in Europe. And even if the cows are not treated with synthetic hormones, because pregnant cows produce hormones naturally and cows used for their milk are kept constantly pregnant, **even the milk of "organic" "hormone free" cows is still filled with sex hormones.**

   And, if the bacteria, antibiotics, and hormones in animal products aren't enough, there is also a build-up of dangerous chemical dioxins in animal products that are

absorbed into your body when you eat them. Dioxins are chemicals that are released into the environment through manufacturing and industrial processes, and they accumulate in animals' tissue and milk. **According to leading scientists and the Environmental Protection Agency (EPA), nearly 95 percent of our dioxin exposure comes in the concentrated form of meat, fish, and dairy products, because when we eat animal products, the dioxins that animals have built up in their bodies are absorbed into our own.** Dioxins are highly toxic; they bind to cells and modify their functioning, potentially causing a wide range of effects, including cancer, depressed immune response, nervous system disorders, miscarriages, and birth deformities. **Researchers at the EPA have found that people who consume even small amounts of dioxins from meat and dairy products have an extra one in 100 risk of suffering from cancer—solely as a result of their dioxin consumption and on top of all other risks.**

Pesticides are also present in large quantities in meat and have been linked to a wide range of health problems in humans, including birth defects and cancer. Although humans do ingest some herbicides and pesticides from plant foods, **scientists report that animal products are responsible for roughly 80 to 90 percent of dietary pesticide exposure.** Pesticides are sprayed on crops that are eventually fed to farmed animals, and like dioxins, pesticides accumulate in the animals' bodies over time. When we eat the flesh, milk, or eggs of animals, we absorb the pesticides that they have eaten during their lives. And fish aren't exempt from the accumulation of toxins as the oceans that they live in are now contaminated with heavy metals such as mercury and even radioactive materials.

9. **Avoid Farmed Fish.** High levels of mercury and PCBs are found in farmed fish – especially the larger ones that are higher up on the food chain such as marlin, orange roughy, swordfish, shark, mackerel and Ahi tuna. ***If you do choose to eat fish, choose wild caught and smaller fish such as salmon and sardines that contain fewer contaminants. You can check out the Food and Water Watch's National Smart Seafood Guide, which has a print-out card you can take with you to restaurants and markets.*** http://www.foodandwaterwatch.org/common-resources/fish/seafood/guide/

10. **Meat-Eaters Should Look for Organic, Grass-Fed Meats, Raised Without Antibiotics or Hormones**. Unless it is labeled as hormone-free, you can be pretty sure that the cattle were given a variety of growth hormones. Factory farmed animals are also fed grains filled with pesticides and GMOs, and these environmental toxins get stored and accumulated in their fat, which gets passed on to you when you eat it. In the U.S. the use of antibiotics is also permitted and are given in normal feed to factory-farmed animals as part of the dietary regimen… unfortunately the use of antibiotics in the meat (and poultry) industry is a major factor in the growing problem of antibiotic resistance in humans. ***If you choose to eat meat, look for organic, meats raised without antibiotics or hormones – and grass-fed is best.***

11. **If You Eat Poultry, Look for Free-Range Organic**. In addition to antibiotics, organic arsenic is routinely fed to poultry to prevent bacterial infections and improve weight gain – even though arsenic is a known carcinogen! ***So, try to choose free-range organic if you choose chicken, but if you can't find or afford this, be sure to look for antibiotic-free and avoid factory-farmed or processed chicken products.***

12. **And Speaking of Meat and Poultry… Avoid Charring, Grilling and Cooking Your Meats at Very High Temperatures.** The charring, grilling and BBQing of meat, poultry and fish creates heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs), compounds linked with cancer. HCAs are created when the meat, poultry and fish are subjected to intense high heat and have been shown to cause cancer in lab animals and may increase the risk of cancers of the breast, colon, stomach and prostate in humans. PAHs are formed when animal or fish fats drip onto hot coals and the smoke and fire that fumes up causes these toxic residues to get on your food and are linked to increase risk of stomach cancer. But, there are things you can do to limit the risk of PHAs and HCAs if you choose to grill. ***The biggest problem is the heat – the longer and hotter the cooking, the greater the problem. So try to limit cooking time on the grill as much as possible (maybe pre-cook a bit before popping on the grill); cut off any charred portions; and stick to leaner cuts of meat. Marinating your meat in herbs and lemon juice for at least 30 minutes before grilling has been shown to significantly reduce the formation of PAHs and HCAs.***

13. **Coffee:** I know many people drink coffee daily, and maybe multiple times a day, so any chemicals in the coffee will add up over time. If you do choose to drink coffee, you can make it a bit healthier with a few small and simple changes.
    - **Drink Organic Coffee!** Most conventional coffee likely contains lots of pesticides and herbicides. Though certain pesticides may be banned or highly regulated in the U.S. and Europe, they are often still used in many other countries where coffee is grown.[50, 51]
    - **Only use decaf coffee that has been decaffeinated through a Swiss water process.** Decaf coffee can contain even more chemicals than caffeinated coffee depending on how it is decaffeinated because many decaffeination processes use chemical solvents.[50]
    - **Use unbleached coffee filters.** While results are inconclusive, the EPA has noted some possible risk that dioxins from bleaching agents can leach into coffee as it is brewed.[50] Since this is an easy fix to buy unbleached filters, better safe than sorry I say. You can also use a French press to avoid all filters.
    - **Use filtered water for your coffee.** If you're using unfiltered water from the tap, you could also be adding chlorine, fluoride and other toxins that are in the water – and heating them can make them even more toxic to your body.
    - **If you need to add some flavor or make your coffee a bit sweeter, DON'T use artificial sweeteners or flavorings.** *Instead use organic honey or stevia.*

You can also add organic unsweetened coconut milk or almond milk and there are a variety of organic spices like cinnamon, ginger, cloves and vanilla that will give it a great flavor.

- **Try to use a plastic-free coffee maker.** Unfortunately, that Mr. Coffee is mostly all plastic (ever gotten that plastic taste especially when you use a new machine?). It's not great to be drinking water that has been piping hot through plastic as the chemicals can leach into your nice cup of java. *Some great alternatives are coffee percolators made of stainless steel, glass French press or just boiling your water on the stove and pouring it over your coffee grounds through a filter. I admit it's not as convenient as Mr. Coffee, but I promise it's a lot less chemical-filled!*
- **Avoid the plastic lids at Starbucks!** If you're like most people, when you order your morning latte, you don't think about the plastic lid; however, research shows that you probably should. Plastic coffee lids made with #6 or #7 plastic are very likely to contain and release BPA – and this is especially the case with coffee because the heat and acidity of the liquid cause high levels of BPA to leach into your drink. *Instead, if you really want that Starbucks bring your own reusable stainless steel mug or make your organic coffee at home!*

14. **Make sure your tea is organic.** The herbs in tea bags can actually be filled with pesticides that then soak into your hot beverage. A 2013 analysis found that 91% of Celestial Seasonings tea tested had pesticide residues exceeding the U.S. limits (for example, Sleepytime Kids Goodnight Grape Herbal contained 0.26 ppm of propachlor, which is a known carcinogen under California's Propsition 65) and 100% Teavana's teas contained pesticides![52] (Teavana is the brand at Starbucks). Luckily there are LOTS of great organic tea brands out there!

15. **Avoid Refined Table Salts.** Our bodies require a certain amount of salt to function, which you can get naturally in the foods you eat. Most table salt is refined and contains none of the naturally occurring minerals.[53] Salt refiners also add other chemicals during the refining process to keep it from caking such as anti-caking agents and aluminum compounds. Some even add dextrose sugar. Research has shown that refined salt can have detrimental influences on the human body. If you want some added salt choose *natural unrefined salts such as pure Himalayan salt, Celtic Sea Salt and Redmond Real Salt which don't have all of the added chemicals and fillers (these can be found at most grocers or easily online).*

Section 3: Reduce Toxins Around Your Home

The fact is, you can't do much about the diesel exhaust emitted from the trucks that drive in front of you on the way to work (**Although see Section 5: Quick Tips for Toxin-Free Travel, Office and Daily Activities with some ways to prevent exposure to those truck fumes when driving), the chemical-laden disinfectants that gets sprayed on the treadmills and exercise equipment while you're sucking in air at the gym, the pesticides or herbicides piled onto golf course or your next door neighbor's lawn, or the air fresheners that are used in public places… just to name a few types of daily exposure to toxic chemicals, **BUT YOU DO HAVE CONTROL OVER THE TOXINS THAT YOU AND YOUR FAMILY ARE EXPOSED TO IN YOUR HOME.**

Did you know that we are actually exposed to more pollution in our homes than when we are outside?!! We spend the majority of our time indoors nowadays, and unfortunately depending on where you live, indoor air is typically 2-5 times more polluted than outdoor air![54] A typical house contains a witch's brew of toxic chemicals that get into the air from regular cleaning products, air fresheners, paint and off-gassing of carpets and furniture to name a few. The many chemicals in and around the home wind up in indoor dust.

According to a study published in April 2009 in *Environmental Science and Technology* that analyzed the household air in 52 homes in Arizona over a period of 30 days, *the indoor air in the typical American home contains over 500 chemicals!*[54] These chemicals ranged from pesticides to phthalates, confirming that indoor air can be heavily contaminated with pollutants. Pesticides, including diazinon, chlorpyrifos and DDT were found at surprisingly high levels, as were phthalates.

In 1998 the United Nations Development Program estimated that more than two million people die each year due to the presence of toxic indoor air. The economic consequences of polluted indoor air can't be ignored either; one Australian study estimated that the cost of unhealthy indoor air in Australia exceeds $12 billion annually (measured in losses of worker productivity, higher medical costs, and increased absenteeism).[55]

While reducing the toxins in our homes is a good idea no matter what, this is especially true if you have babies and young children around. The breathing zone of a baby (less than 2 feet above ground) can be more contaminated than an adult's breathing zone (4-6 feet) because many contaminants such as mercury and pesticides weigh more than air are closer to the ground.[56]

Of course no two homes have exactly the same air quality issues and there's no way to eliminate them all, but you can do many things to reduce your exposure to the worst culprits.

20 Tips to Reduce the Toxins Around Your Home

1. **Use Toxin-Free Cleaning Products (See Section 4 for more details including what to avoid and what to use instead).** Many of the cleaning products we use to clean our furniture, bathrooms, windows etc. are full of toxic chemicals, some of which do not even appear on the labels. ***Switch from the standard household cleaning products to cleaner and greener ones that don't damage your health or the environment and work as well as the mass-marketed ones. You can also use basic ingredients you have around the house, for instance, white vinegar in place of bleach, baking soda to scrub your tiles and hydrogen peroxide to remove stains.***

2. **Ditch the Synthetic Air Fresheners!** The EPA and air quality experts warn against using chemical air fresheners or room deodorizers. Most fragrances are derived from petroleum products, and generally haven't been tested to see if they have any significant adverse health effects in humans when they are inhaled. Most all synthetic air fresheners, including the "all natural" ones, contain phthalates (shown to disrupt hormones) and they all contain a bunch of other toxic chemicals. In one study, a plug-in air freshener was found to emit 20 different volatile organic compounds (VOCs), including seven regulated as toxic or hazardous under U.S. federal laws.[57] And these chemicals were not included on the label. This is because only the word "fragrance" is required to be listed; the actual composition of the fragrance is considered a "trade secret." Not to mention that the way most synthetic air fresheners work is by releasing nerve-deadening agents or coating nasal passages with an oil film, usually a pesticide called methoxychlor, that interferes with your ability to smell. ***There are many healthier options for a great smelling room – even bathroom!!*** *Sure bathroom, pet and food odors can sometimes be pretty bad… but not for long if you know about vinegar and baking soda!! Vinegar has an extraordinary ability to wipe-out strong odors -- All you need to do is mix white vinegar with some water in a spray bottle (2/3 vinegar and 1/3 water works well and add a few drops of essential oil if you like) and then spray as you would with an air freshener. You will smell the strong scent of vinegar for about five minutes, but then it dissipates, taking along the offensive order with it! You can spray vinegar in trash bins, shoes, pet areas, the bathroom etc. on a regular basis and without the guilt and risk of using toxins. Another plus to vinegar — it is very inexpensive, especially if you buy the big jugs at Costco. Or set out some baking soda to absorb odors and add a few slices of lemon for added fresh scent. (Works well for trapping stinky odors in refrigerators too). If just removing the stinky smells is not enough and you want some lovely scents, there are lots of great options. Try a bouquet of fresh flowers, a bowl of herbs like rosemary or sage or some organic pure essential oils (Young Living is a great brand). With essential oils you can apply the scent of your choice in a number of ways - mix a few drops of the essential oil in a spray bottle filled with water and spray; use a water-based diffuser or add a few drops of essential oil to some simmering water on the stove. Try lemon, lavender, rose and/or cinnamon for some fresh clean scents. For more info check out this article.*

3. **Ditch the fragranced consumer products in general— air fresheners, laundry supplies, personal care products, and cleaners.** These products can contain chemicals that are not disclosed to the public through product labels or material safety data sheets (MSDSs). What are some of these chemicals and what limits their disclosure? A study published in 2009 in the *Environmental Impact Assessment Review* conducted a chemical analysis of six best-selling products - three air fresheners (solid deodorizer disk, liquid spray, and plug-in oil) and three laundry supplies (dryer sheet, fabric softener and detergent) – and found that in these six products, nearly 100 volatile organic compounds (VOCs) were identified, *but none of the VOCs were listed on any product label, and one was listed on one MSDS.*[57] Of those identified VOCs, ten are regulated as toxic or hazardous under federal laws, with three (acetaldehyde, chloromethane, and 1,4-dioxane) classified as Hazardous Air Pollutants (HAPs). Remember, no law in the U.S. requires disclosure of all chemical ingredients in consumer products or in fragrances. For fragranced products regulated under the Federal Food, Drug, and Cosmetic Act (FFDCA), the product label needs to list the word "fragrance," (or a similar term such as "perfume," "parfum," "natural fragrance," "pure fragrance," or "organic fragrance") but not the ingredients in the fragrance. Manufacturers can also get out of disclosing ingredients in fragrance by claiming the list is a "trade secret."

4. **Stop using aerosol sprays!** Deodorants, hair sprays, spray sunscreens, carpet cleaners, furniture polish, and air fresheners… Not only do conventional sprays contain an array of toxicants that disperse into the air, but the micronized particles in aerosol sprays (that fine vapor mist) can be more deeply inhaled into the lungs – these little stinkers are often dangerously toxic to you and the environment.[58] Next to injections, breathing fine vapor mist is the fastest way to absorb a chemical into your body. For someone having a massive asthma attack, medicinal delivery through a fine mist is a wonderful thing, but for the rest of us just trying to get ready for the day or clean our homes they are not so nice. Just as asthma medication is quickly inhaled via aerosol spraying, so are the hundreds of questionable chemicals that come in other types of aerosol cans. ***Fortunately, there are numerous alternatives to that highly flammable, often highly polluting, potentially cancer-causing aerosol can. Avoid the spray sunscreen and use toxin-free old-fashioned rub-on versions instead; see tip #1 for healthier air freshener options; use toxin-free roll-on deodorants; if you really, really must use hair spray, at least opt for a spray pump; and use toxin-free cleaners and polishes (see Section 4 for some great ones!)***

5. **Don't use Artificially Scented or Paraffin-Based Candles and Be Sure to Check the Wicks for Lead.** Though they seem safe and add a nice touch to a romantic evening or holiday dinner, some of them may actually be bad for your health. According to researchers at the University of South Carolina State, candles made from paraffin wax (a petroleum waste product) emit dangerous chemicals into the air, including the known carcinogens benzene and toluene, when they are burned.[59] While there have been no definitive studies determining the long term effect of exposure to the fumes from candles made from paraffin, the fumes are similar to

those released by automobile exhaust—except that they are released into the enclosed space of your home. Many candles also contain artificial scents and dyes that release additional toxic chemicals when burned, and waxes with fragrance added create more soot, which not only dirties your home but your airways as well.[60] And other problems stem from what may be in the candle's wick – *lead*. The manufacture and sale of lead-cored wicks has been banned in the U.S. since October 2003, but unfortunately studies have found that many of the candles on the market today still contain lead, likely due to imported candles. A study conducted in 1999 by researchers at the University of Michigan School of Public Health analyzed emissions of lead from fourteen different brands of candles with metal-core wicks purchased in Michigan stores, and they **found that all of them emitted various amounts of lead into the air at concentrations above the EPA outdoor ambient air quality standard.**[61] Note, the EPA standard is for *outdoor* air—not indoor air of an enclosed space! The U.S. Consumer Product Safety Commission (CPSC) similarly found that *even in one hour of burning,* some lead-cored wicks emit large amounts of lead into the air – as much as seven times the rate that could lead to elevated levels of lead in a child![62] We can inhale the vaporized lead in the air, and children may also be exposed to lead that settles on objects and surfaces in the area by putting these objects in their mouths or touching these objects or surfaces and then putting their hands in their mouths. While lead poisoning is no good for anyone, lead poisoning in children is particularly deleterious because of their small body size and is associated with behavioral problems, learning disabilities, hearing problems and growth retardation. According to the CPSC, because lead accumulates in the body, even exposure to small amounts can be problematic.[62] ***So what can you do if you want to use candles? Choose organic varieties made with natural waxes like 100% beeswax or soy and essential oils (make sure the label says that's what it is!). To protect yourself and family from possible lead exposure, check ALL wicks by peeling them back a bit. If you see any metal or wire, don't light it. Safe alternatives to lead-cored wicks are synthetic fibers, cotton and paper.***

6. **Don't use fragranced and toxic dishwashing liquids and soaps.** Most dishwashing liquids contain an array of chemicals with known health effects including artificial dyes made from coal tars, artificial fragrance (phthalates), and formaldehyde-releasing preservatives. They are labeled "harmful if swallowed" for a reason. Each time you wash your dishes, some residue is left on them, which accumulates with each washing. Your food picks up part of the residue -- especially if your meal is hot when you eat it. AND each time you use them you are releasing toxic fumes into your kitchen. If it contains triclosan, it could mix with the chlorine in your water to create chloroform, a probable human carcinogen, that is then released into the air; sodium dichloroisocyanurate, often found in conventional automatic dishwasher products also releases chlorine fumes into the air during use.[63] ***Instead use fragrance-free products made from vegetable-based ingredients or make your own (see Section 4 for more details). And to avoid unnecessary fumes escaping, wait until the dishwasher has cooled down before you open it.***

7. **Avoid Toxic and Fragranced Laundry Products – Detergents, Fabric Softeners and Dryer Sheets.** Studies have confirmed that most laundry detergents and dryer sheets contain poisons that leave residue on the clothing you wear, the bedding you sleep in, and everything else you put through the wash… that then comes in contact with your skin. A 2008 study examined six top-selling laundry products and found that all of them contained at least one highly toxic substance.[64] The toxins identified in the products included acetone, which is the active ingredient in paint thinner and nail-polish remover; as well as bleach, which is a major source of accidental home poisoning; phenols, which can damage the heart, lungs, kidneys, and liver; brighteners, which have been known to cause cellular mutations; and fragrances, which, as previously mentioned, contain all types of unlisted chemicals. None of the toxins were listed on the labels of the products that were tested and all can cause health problems ranging from rashes to cancer through skin exposure and inhaling the scent. Not only do commercial laundry products typically contain skin irritants and environmental pollutants, a 2011 study from the University of Washington found yet another strike against substances that launder your clothing - it turns out that using the most popular brands of scented laundry detergent leads to dangerous emissions that come out the vent when running clothing through the dryer.[65] The study found that when clothes washed with commercial laundry products were dried, the dryer vents emitted 25 volatile organic compounds (VOCs) during the cycles!! VOCs are chemical compounds that can cause long-term health effects. The EPA classifies seven of these VOCs as hazardous air pollutants, and two – acetaldehyde and benzene – as carcinogens with no safe exposure level. In other words, even a small whiff of dryer fumes once in a while can cause health problems. ***So what can you do? Purchase organic or natural detergents that state they are free of phthalates, sodium laureth and lauryl sulfates, synthetic whiteners and artificial fragrances (to name a few) or make your own (See section 4 for details). Short, simple ingredient lists mean fewer hidden ingredients in the container. It's a good idea to buy a natural brand, but don't assume you're safe just because it comes from the health-food store.***

8. **Just to Emphasize Again - Avoid Fabric Softeners and Ditch the Dryer Sheets!!** Fabric softeners work by leaving a residue on the fabric that never completely washes out. They contain chemicals (many of which are known formaldehyde-releasers) that can cause allergic reactions through skin contact and inhalation. Fabric softeners may also contain carcinogenic coal-tar dyes, ammonia and very strong scents. When fabric softeners are exposed to hot water, heat from dryers or ironing, vapors may be emitted which can be inhaled, increasing their impact. And dryer sheets are no better![65] Unfortunately, dryer sheets can contain some harmful chemicals – including those fragrance chemicals – that also vent off into the air we breathe and rub off on our clothes and then onto our skin. ***The solution? Non-toxic wool balls or just throw an old sweater in with your laundry to decrease drying time and reduce static. (And see Section 4 for an additional homemade alternative).***

9. **Reduce Exposure to Toxins from Dry Cleaning.** Conventional dry cleaners use lots of hazardous chemicals to "clean" clothing without using water including the chemical tetrochloroethylene also known as perchloroethylene (perc), which is reasonably anticipated to be a human carcinogen, according to the U.S. National Toxicology Program, a prestigious inter-agency scientific body.[66] The International Agency for Research on Cancer has reached a similar conclusion. When inhaled, even low concentrations of perc are known to cause respiratory and eye irritation, headache, dizziness and vision problems. So it seems clear why this is a problem for those who work in a dry-cleaning facility, but why is it a problem for others you might ask? According to the Natural Resources Defense Council, customers who dry clean clothes can affect their own indoor air quality by bringing a trace of toxic PERC residue into their homes where it can linger in the air, even when the clothes are not being worn.[67] The Colorado Department of Public Health and the Environment actually investigated this and found PERC in the indoor air of many homes;[68] and the Federal Agency for Toxic Substances and Disease Registry similarly found that in homes and cars containing fresh dry cleaning, PERC concentrations sometimes rise above levels of concern.[69] And perc lingers on the clothes you put on your body! A study by scientists at Georgetown University, published in 2011 in the journal *Environmental Toxicology and Chemistry*, found high levels of residual perc on dry-cleaned wool, cotton and polyester, and subsequent dry cleaning cycles intensified these concentrations (silk was the only fabric that did not appear to retain perc).[70] The research team found that after about a week and still enclosed in a plastic bag, the concentration of the chemical on wool was reduced by about half suggesting that perc vaporizes from clothing and is released into your home. So in other words, once you dry clean your clothes and bring them home, some of the chemicals evaporate and are released into your indoor air and the rest remain on the clothes for you to put on your skin when you wear them (a double whammy!!). ***So what can you do to avoid harmful dry cleaning chemicals?***

- ***One possible option is to try to avoid or reduce buying clothes that need to be dry cleaned only;*** *try washing delicate clothes yourself (either hand washing or on the very delicate cycle which most machines around have) and then having them pressed by a dry cleaner to provide that crisp look without the chemical exposure, and for less money.*
- ***If you need to use a cleaner, then follow these tips:***
  - *Go to a cleaner that uses the wet-cleaning method (this method doesn't use toxic chemicals). *You can find wet-cleaners in your area at www.nodryclean.com).*
  - *If you can't go to a cleaner that offers wet-cleaning, then ask what solvents they use. Watch out for perchloroethylene under any of its names (perc, PCE, tetrachloroethylene), siloxane and hydrocarbon solvents.*
- **Note: Even if your cleaner *claims to be "Earth-friendly," be sure to ask about the specific methods and chemicals they use. Some dry cleaners will advertise as "green," "organic," or "environmentally friendly" because they don't use perc, but oftentimes the methods they are using aren't really safe either. For example, some hydrocarbon cleaners claim their methods are "organic," but hydrocarbon cleaning is not green at all – hydrocarbon is a petroleum-based solvent and carries all the*

environmental concerns of petroleum, including the fact that it's a major source of greenhouse gases. Some cleaners use the GreenEarth method, which replaces perc with a silicone based solvent called siloxane or D-5, which is similar to the base ingredients in deodorant and shaving creams. D-5 degrades to sand, water, and carbon dioxide. It's chemically inert, which means no chemicals mix with your clothes while they are being cleaned; however, Dow Corning, D-5's creator, did a study that revealed an increased risk of uterine cancer in female rats that were exposed to D-5, which has led the EPA to note that it may be a carcinogen. Also, manufacturing D-5 requires chlorine, which releases carcinogenic dioxin during its own manufacture.

- *If your only option is to use a dry cleaner that uses perc, don't leave dry cleaned items in the car for a long time because perc vapors can build up inside the vehicle; then when you get home, remove the clothes from the plastic bag and air dry your newly dry-cleaned clothes outdoors or in a well-ventilated area away from your living space for at least a day before bringing them into your home. <u>And ask your dry cleaner to consider using wet-cleaning - you just might convince them!</u>*

10. **Don't use conventional pesticide and insecticide sprays inside your home or on your lawn or garden (especially if you are growing food to eat!).** Pesticides contain a soup of extremely toxic chemicals that you really don't want to be spraying inside your home – you don't want to be breathing in these chemicals or be exposed to any of the toxic residues. (Just look at the warning labels on these products!) Of the 30 most commonly used lawn chemicals, 19 have studies pointing toward cancer, 13 are linked with birth defects, 21 with reproductive effects, 26 with liver or kidney damage and 15 are known to cause nervous system poisoning.[71] And don't think that just because you're spraying it outside that it doesn't get in your home. Scientific studies find pesticide residues such as the weedkiller 2,4-D and the insecticide carbaryl inside homes, due to drift and track-in, where they contaminate air, dust, surfaces and carpets and expose children at levels ten times higher than pre-application levels.[72] Pesticides anywhere are dangerous for small children and pets that are touching and possibly eating off of the floor and absorbing anything at ground level much more quickly. Children take in more pesticides relative to body weight than adults and have developing organ systems that make them more vulnerable and less able to detoxify toxins.[73] A study published in the *Journal of the National Cancer Institute* found that home and garden pesticide use can increase the risk of childhood leukemia by almost seven times,[74] and another published in the journal *Environmental Health Perspectives* found that exposure to home and garden pesticides can increase a child's likelihood of developing asthma.[75] Plus, any pesticides we use on our gardens eliminate not only plant pests but also most of the insects that are beneficial to help control these pests. ***If you have an insect problem indoors or are looking for something for your lawn or garden, try non-toxic alternatives first! There are LOTS of great natural pest-control options you can find online – for example, check out Eartheasy's website that lists natural remedies for bugs of every type. And check out Organic Gardening for great chemical-free fixes for common lawn problems!***

11. **Filter Your Shower Water.** In addition to filtering the water you drink, it's also a good idea to use a filter for your shower and bath water. If you're like most people you're probably showering at least once a day and many of the contaminants in tap water become gases in the hot shower that you then breathe in. One big issue is the chlorine in the water – but not just because of the way it smells or the fact that it dries our hair or skin. The big problem with chlorine is that when it combines with organic matter in the water supply it forms disinfection byproducts, including trihalomethanes (THMs). And two primary THMs formed are chloroform and bromodichloromethane – class B carcinogens.[76] According to the National Toxicology Program (Department of Health and Human Services), both of these chemicals are "reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in experimental animals." In addition to cancer, studies have also linked THMs from chlorinated water to a variety of reproductive issues, such as miscarriage, birth defects, and low birth weight as well as liver damage and weakening of the immune system and arteries. *And the majority of our exposure to THMs comes from showering and/or bathing.* According to the National Toxicology Program, the concentration of chloroform in the blood increased 2- to 7-fold after showering,[77] and the concentration of bromodichloromethane in the blood increased 3- to 4-fold after showering.[78] Reminder: the skin is the body's largest organ and absorbs whatever we put on it -- this not only includes body lotions, soaps, and makeup, but also water and the chemicals in water. In addition, steam from the hot shower contains anywhere from 20 to 50 times more chemicals than liquid water since THMs vaporize much more quickly. And inhaling these chemicals can be more dangerous than drinking them in water since they go directly into our blood stream when inhaled, whereas ingested water (and the chemicals it contains) is partially filtered out by our kidneys and digestive system. These chemicals can also more easily penetrate our skin while showering and/or bathing since the heat opens our pores. ***The good news is that chlorine can easily be removed from water with a filter, shower water filters are extremely easy to install, and even the most expensive options are under $100 (a Culligan shower filter runs about $30).***

12. **Avoid vinyl shower curtains (particularly those that contain PVC).** In 2008, three researchers examined PVC shower curtains sold at five major retailers: Bed, Bath & Beyond, Kmart, Sears, Target and Wal Mart. In their final report, Volatile Vinyl: The New Shower Curtain's Chemical Smell, the researchers found that the PVC shower curtains released toxic chemicals including up to 108 volatile organic compounds (VOCs) (7 of which are on the EPA's list of hazardous air pollutants and some of which are suspected or known human carcinogens), phthalates, and toluene and ethylbenzene (both on California's Proposition 65 list of chemicals known by the State to cause cancer or reproductive toxicity). The study also found that some of the chemicals lingered in the air for more than four weeks! While you might think that this exposure is insignificant, the total VOCs detected were 16 times the U.S. Green Building Council's recommended guidelines…and usually people are showering at least once a day. (Researchers did not look at the effect of heat and humidity on the shower curtains, but the authors did admit it is likely the heat and

humidity would increase the levels of VOCs and other toxins being released into the air—making your showers all the more toxic.) ***So what can you do instead? Try to get a fabric/non-vinyl shower curtain. There are actually lots of affordable options if you just enter "PVC-free shower curtain." If you get a new shower curtain (whatever the material), leave it outside to air out for several days before using.***

13. **Keep the Indoor Air Clean – Ventilate, Filter and Purify the Air with plants.** If you live somewhere away from lots of traffic, a great option for some fresh air is to *keep your windows and/or doors open as much as possible to ventilate* so chemicals don't build up in your home. If you or your child has pollen allergies or you do live in a polluted area, then *keep the air clean with an air filter*. Try a portable air cleaner/purifier, especially for the bedrooms. If you have a home, don't forget to *clean your air ducts* on a regular basis! Another great option is to *keep green plants indoors* as many houseplants are actually wonderful air purifiers. In the late 1980s, NASA and the Associated Landscape Contractors of America studied houseplants as a way to purify the air in space facilities and found that many actually absorb and filter common volatile organic compounds (VOCs) out of the air.[79] Other studies have since been published further proving this. For example, as published in 2009 in the *Journal of American Society of Horticultural Science*, a research team from Pennsylvania State University found that three common houseplants (snake plant, spider plant and golden pothos) were very effective at reducing ozone concentrations in an indoor environment.[80] NASA also liked spider plants as well as Boston ferns, and these two are safe if you have pets in the house (and as an added bonus, they are low cost and low maintenance as well!).

14. **Keep house dust to a minimum (as more dust means more toxins) – Mop and vacuum regularly**. Dust can contain lead and pesticides tracked in on shoes from outside, dust mite fragments and feces, soil, lint, human and pet hair, human and pet dander, mold spores, pollen grains and pesticide residues – not to mention chemicals from anything used around the house. And children are vulnerable to higher exposures because they tend to get dust on their fingers and then put their fingers in their mouths (and pets are more vulnerable too since they lay on and often eat food off of the ground). *So what are the best solutions? Mop all surfaces at least once a week (but be sure to use just water or an all-natural surface cleaner – see Section 4 for some super-easy homemade options!) and use a good quality vacuum cleaner (with a HEPA filter, preferably) for your carpets. (Most vacuums now use HEPA filters but look for it on the label). Why a HEPA-filter? HEPA-filter vacuums capture the widest range of particles and get rid of allergens – with many vacuums LOTS of very fine particular are often blown back into the room (you can often see it coming out of the back of the vacuum and smell it). A good quality vacuum is especially important for carpeting since carpet can store a large amount of contaminants.*

15. **Going Along with keeping house dust to a minimum, adopt a "No Shoes in the House" policy and don't bring the dust in**. Even in a newer home, you may face

lead exposure -- from lead dust tracked in from outside. Not to mention other chemicals like pesticides and whatever is on a street or sidewalk, the public restroom you went into earlier in the day, etc… you get the point. To best protect your family, ask people to remove their shoes when entering your home. If you don't want to go barefoot indoors, a great option is to keep house shoes, slippers, or socks near the door.

16. **Avoid Lead Paint and if you're Repainting by No or Low-VOC Paints.** If you live in a home built before 1978 (lead paint was banned for residential use in the United States in 1978), there's a good chance that lead paint still exists on your walls. Another good reason to mop surfaces -- Because household dust is a major source of lead, you should wet-mop floors and wet-wipe horizontal surfaces regularly. The best option to avoid exposure is to repaint. When repainting, use a wet sanding technique to reduce dust, choose low or no-VOC and low odor (water-based) paints and always paint with the windows open for good ventilation. And definitely keep children and pets away from construction/repainting dust and loose paint chips.

17. **Downsize your carpeting.** Luxurious as it may seem, wall-to-wall carpeting tends to "off gas" fumes and chemicals that can add to your body's total toxic load (ever notice that persistent new carpet smell?). Carpets contain a host of chemicals that are known carcinogens, have been shown to produce fetal abnormalities in test animals and nerve damage and respiratory illness in humans including toluene, benzene, formaldehyde, ethyl benzene, styrene, and acetone.[81, 82] So if possible, consider replacing carpeting with natural fiber or cotton rugs, hardwood floors or ceramic tiles. Can't imagine living without wall-to-wall carpet? Then look for eco-friendly wall-to-wall carpets made without petroleum products or toxic chemical finishes and insist that your installer uses non-toxic glues, adhesives, stains and sealers.

18. **Try to avoid foam furniture.** Fire retardants are commonly added to furniture that contains polyurethane foam, including mattresses, couches and upholstered chairs, futons and carpet padding. They are also found in children's products such as car seats, changing table pads, portable crib mattresses, nap mats and nursing pillows. So what's the big deal? Not only do they release toxic fumes, they migrate out of products and can contaminate house dust.[83] A peer-reviewed 2012 study found that the dust in most homes has levels of at least one flame retardant that exceeds a federal health guideline.[83] And these flame retardants include hormone disruptors, carcinogens and chemicals with unknown human safety.[84] Scientists have also found that exposure to toxic fire retardant chemicals at critical points in development can damage the reproductive system and cause deficits in motor skills, learning, memory and behavior.[85] Foam products made before 2005 may be the particularly hazardous because they usually contain PBDEs, a highly toxic chemical used in fire retardant that were taken off the U.S. market at the end of 2004; however, PBDEs may still be found in imported foam products made after that date, and scientists are finding that newer substitutes such as TDCIPP may be just as harmful and is showing up in particularly high amounts in the bodies of toddlers.[86] ***So what can***

you do? It's best to try not to bring them into the home in the first place. Ask whether a foam product is treated with flame retardants before you buy it and choose naturally fire-resistant materials such as organic cotton and natural latex, when possible. (If you live in California you may have an easier job in figuring out what's in your products if they are made after 2015 because California enacted a law effective January 1, 2015 that requires labeling on upholstered furniture to tell shoppers whether it contains toxic flame retardant chemicals.[87]) If you already own foam furniture, make sure all foam is well-covered (no rips in the cushions etc.).

19. **Be careful with compact fluorescent light bulbs!** I had a personal experience with a broken compact fluorescent light bulb before I knew this information. Compact fluorescent lightbulbs (CFLs) contain a small amount of mercury in the bulb. As effective as it is at enabling white light, mercury is also *highly* toxic. The problem comes when a bulb breaks. Mercury escapes as vapor that can be inhaled and also as a fine powder that can settle into carpet and other surfaces (including clothes). For this reason, the EPA and each state have special instructions for cleaning up broken CFL bulbs. I think everyone should take a look at these so that they are prepared in case a CFL ever breaks in their home or around them. Here are the EPA instructions: http://www2.epa.gov/cfl/cleaning-broken-cfl. The key things to do immediately after it happens are: 1) Have people and pets leave the room, 2) air out the room for 5-10 minutes by opening a window or door, and 3) shut off the central forced air heating/air conditioning system, if you have one. Then there are additional special instructions for actually cleaning up the debris to avoid exposure with the mercury particulate.

20. **Keep your kids safe from arsenic by sealing wooden decks, picnic tables and playground sets with non-VOC sealant.** Do you have a wooden deck, picnic table or playground set? Wooden outdoor furniture items made before 2005 are likely coated with an arsenic pesticide (it's meant to protect them from harsh elements and insects). The EPA banned arsenic-treated wood for decks and playsets in 2004, but because it was the standard to use them for a long time before that, a majority of homes in the U.S. still have old arsenic-treated wood porches and decks as do many older playsets and outdoor wooden furniture pieces. ***The solution? Seal the wood every six months with a low or no-VOC deck treatment, or if possible, replace arsenic-treated handrails and steps or table tops most likely to touch the skin. And no matter what, its best to have children wash their hands after playing, especially before eating. Also be sure not to sand or pressure wash the surface of arsenic-treated wood, which can blast off the upper surface of the wood and spray arsenic-contaminated particles over your yard. Instead, to clean any surfaces use a soap and water solution with disposable cleaning supplies. And don't store toys under a deck because arsenic can leach from the wood when it rains and may coat things left there.***

Section 4: Cleaning Products

Household cleaning agents are the number one source of toxins in the home (that's why they get their own section in the guide!). A 2010 study published in the *Journal of Environmental Health* found that overall, women who used a combination of cleaning products to clean their homes were up to 110 percent more likely to develop breast cancer than those who rarely used them.[82] And a 2006 study found that when used indoors under certain conditions, household cleaners and air fresheners emit toxic pollutants at levels can lead to health risks.[89]

The vast majority of cleaning products contain not one but an abundance of toxic chemicals, which are absorbed through the skin, inhaled into the lungs and ingested as their residues remain on dishes and other household items after they have been washed. Many of the chemicals in standard cleaning products have been linked to reproductive disorders, neurological problems, cancer, asthma and skin irritation (to name a few), while many others have not been thoroughly tested for their impact on human health. And for those that have been tested, they haven't been tested in combination with other chemicals that they are combined with in cleaning products and combinations can be worse than the individual ingredients alone.

Prior to WWII most household cleaning tasks were accomplished using relatively safe ingredients commonly found in most homes. With the proliferation of petroleum-based chemicals after the war, corporations began to manufacture ready-made cleaning products. Today, most people are accustomed to buying a wide range of products custom-designed for the many surfaces, materials and rooms in their homes.

Luckily most cleaning can be easily done without these toxic products!! Everyday ingredients like baking soda, vinegar, salt, lemon juice, borax, hydrogen peroxide and washing soda can do the job. ***In the sections below, I've included some great all-natural cleaners you can make yourself!***

And thankfully consumer demand and recognition of the hazards of many chemical ingredients are leading more companies to manufacture less toxic cleaning products… but until they do, we need to know what to look for and what to avoid. Unfortunately, the ingredients contained in many conventional petrochemical-based cleaning products are not usually listed on labels. Many, but not all, less-toxic products will have ingredients listed on their labels. ***So that you are armed with the knowledge, below is a list of some of the most common toxic chemicals found in household cleaning products to watch out for.***

But remember, like personal care products, just because a product says it is "natural," you still need to check the label… OR use the Environmental Working Group's Guide to Healthy Cleaning! (Check out the Tips for Safer Cleaning on page 43).

Common Hazardous Ingredients in Cleaning Products

Although the chemicals in today's cleaning products would take volumes, the list below includes the most common. Knowing what they are will give you reasons to avoid them.

Acetone: Acetone is a neurotoxin and may cause liver and kidney damage as well as damage to a developing fetus if absorbed into the mother's body and passed through the placenta. It is a skin and eye irritant. In addition to many nail polish removers, acetone is found in spot treatment cleaners, mark and scuff removers, and other products.

Aerosol products: Aerosol propellants may contain propane, formaldehyde (a carcinogen, neurotoxin and central nervous system depressant), methylene chloride (a carcinogen, neurotoxin and reproductive toxin), and nitrous oxide (among others). Products applied with aerosol sprays are broken into minute particles, which can be more deeply inhaled into the lungs than larger particles, and this may increase their toxic effect.

Ammonia: Undiluted, ammonia is a severe eye and respiratory irritant that can cause severe burning pain, and corrosive damage including chemical burns, cataracts and corneal damage. It can also cause kidney and liver damage. Repeated or prolonged exposure to vapors can result in bronchitis and pneumonia. Found in a wide range of cleaning products. Ammonia will react with bleach to form poisonous chlorine gas that can cause burning and watering of eyes, as well as burning of the nose and mouth.

Bleach (also called sodium hypochlorite): Bleach is commonly used and found in a range of household cleaners, but it is actually a corrosive chemical. It is an eye, skin and respiratory irritant, as well as a sensitizer. It is especially hazardous to people with heart conditions or asthma, and can be fatal if swallowed. It may be a neurotoxin and toxic to the liver. Found in a wide range of household cleaners.

Diethanolamine (DEA): Listed as a suspected carcinogen by the State of California, this chemical is a skin and respiratory toxicant and a severe eye irritant. DEA is used in a wide range of household cleaning products.

Ethoxylated nonyl phenol: Nonyl phenols are used in laundry detergents and other cleaning products. They are hormone disruptors, often contain traces of ethylene oxide, a known human carcinogen, and are known eye and skin irritants.

Formaldehyde: In lab tests, formaldehyde has caused cancer and damaged DNA. Formaldehyde is also a sensitizer, with the potential to cause asthma. Several laboratory studies have shown it to be a central nervous system depressant. Exposure to formaldehyde may cause joint pain, depression, headaches, chest pains, ear infections, chronic fatigue, dizziness and loss of sleep. While formaldehyde naturally occurs in the human body in minute amounts, it is estimated that 20% of people exposed to it will experience an allergic reaction. And it's actually used in a wide range of products.

Fragrance: Fragrance on a label can indicate the presence of up to 4,000 separate ingredients, many of which are human toxins and suspected or proven carcinogens. In 1989, the U.S.

National Institute of Occupational Safety and Health evaluated 2,983 fragrance chemicals for health effects. They identified 884 of them as toxic substances. The U.S. Environmental Protection Agency found that 100% of perfumes contain toluene, which can cause liver, kidney and brain damage as well as damage to a developing fetus. Symptoms reported to the FDA from fragrance exposure have included asthma, headaches, dizziness, rashes, skin discoloration, violent coughing and vomiting, and allergic skin irritation. Clinical observations by medical doctors have shown that exposure to fragrances can affect the central nervous system, causing depression, hyperactivity, irritability, inability to cope, and other behavioral changes.

Methylene chloride: Methylene chloride is often found in stain removers and is a carcinogen, a neurotoxin and a reproductive toxin. On inhalation, it can cause liver and brain damage, irregular heartbeat, and even heart attack. Not to mention that it is a skin and eye irritant.

Monoethanolamine (MEA): Found in many cleaning products, including oven cleaners, tub and tile cleaners, laundry pre-soaks, floor strippers and carpet cleaners, MEA may cause liver, kidney and reproductive damage, as well as depression of the central nervous system. Inhalation of high concentrations - when cleaning an oven for example - can cause dizziness or even coma. MEA can also be absorbed through the skin and like so many others, is a skin and eye irritant.

Morpholine: This corrosive ingredient is used as a solvent in a number of cleaning products, including some furniture polishes and abrasive cleansers. It can severely irritate and burn skin and eyes, and can even cause blindness if splashed in eyes. It can cause liver and kidney damage, and long-term exposure can result in bronchitis. It reacts with nitrites (added as a preservative to some products) to form carcinogenic nitrosomines.

Naphthalene: Napthalene is most commonly found in mothballs, pest repellants and deodorizers and is a registered pesticide that is listed as a suspected carcinogen in California. As a reproductive toxin, it is transported across the placenta and can cause damage to the developing fetus. It can also cause liver and kidney damage, and corneal damage and cataracts. Skin exposure is especially dangerous to newborns.

Parabens: Parabens are hormone disruptors and are widely used in cleaning products as preservatives. Paraben chemicals are usually found under the names methylparaben, ethylparaben, butylparaben, or propylparaben.

Paradichlorobenzene: This highly volatile registered pesticide is in the same chemical class as DDT but it is used in mothballs and air fresheners. It is a suspected carcinogen, and may cause lung, liver and kidney damage.

Phosphoric acid: Found in some liquid dishwasher detergents, metal polishes, disinfectants, and bathroom cleaners (especially those that remove lime and mildew), phosphoric acid is extremely corrosive and can severely irritate and burn the skin and eyes. Breathing the vapors can cause lung aches and it may be toxic to the central nervous system.

Sodium dichloroisocyanurate dehydrate: This corrosive chemical is found in some toilet bowl cleaners and deodorizers, as well as dishwashing detergents. It's a severe eye, skin and respiratory irritant, may cause liver and gastrointestinal damage, and may be toxic to the central

nervous system. It will react with bleach to form poisonous chlorine gas that can cause burning and watering of eyes, as well as burning of the nose and mouth.

Sodium Lauryl Sulfate and Sodium Laureth Sulfate: Sodium lauryl and sodium laureth sulfate (SLS) are used as a lathering agent. SLS is a known skin irritant and also enhances the allergic response to other toxins and allergens. The U.S. government has warned manufacturers of unacceptable levels of dioxin formation in some products containing this ingredient, and SLS can react with other ingredients to form cancer-causing nitrosamines

Toluene: Toluene is found in many cleaning products as a solvent and exposure to it may cause liver, kidney and brain damage. It is also a reproductive toxin which can damage a developing fetus.

Turpentine: Found in specialty solvent cleaners, furniture polish and shoe products, turpentine chemical can cause allergic sensitization, and damage to the kidney, bladder and central nervous system.

Xylene: Used in some spot removers, floor polishes, ironing aids and other products, xylene has significant neurotoxic effects, including loss of memory. High exposure can lead to loss of consciousness and even death. It may damage liver, kidneys and the developing fetus. And like many other chemicals in cleaners, it is a skin and eye irritant.

TIPS FOR SAFER CLEANING

1. **Three Words to Watch Out For on Cleaning Products: Caution, Warning and Danger.**

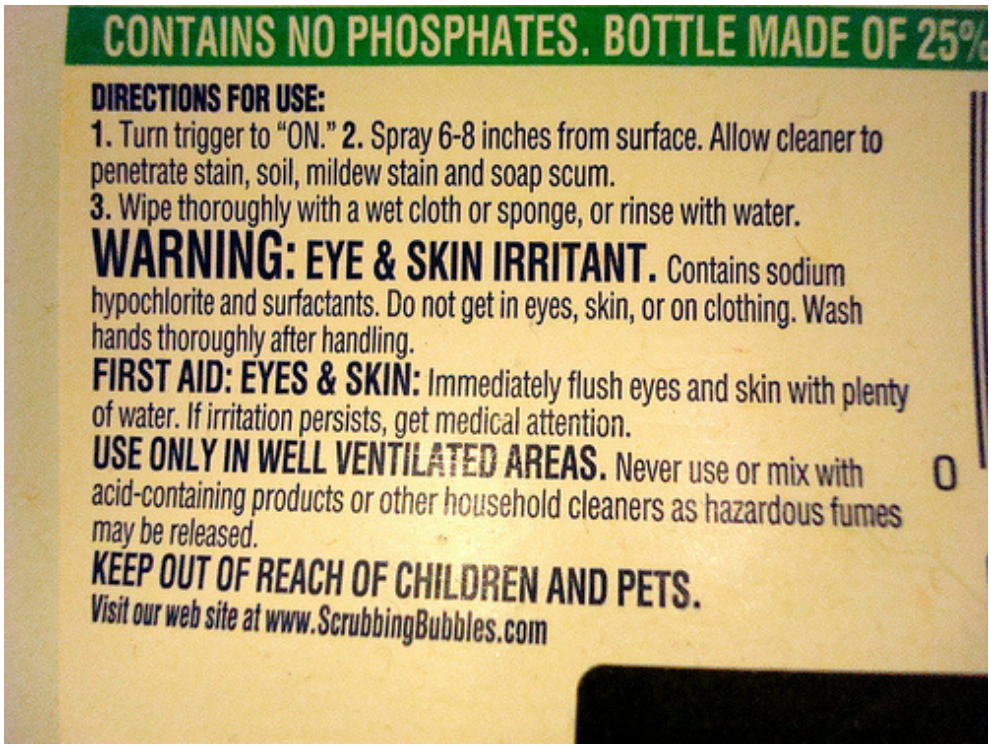
These three words are actually required by the EPA to appear on the label of poisonous substances (they replaced the skull and crossbones symbol).

DANGER means that the pesticide product is highly toxic by at least one route of exposure. It may be corrosive, causing irreversible damage to the skin or eyes or it may be highly toxic if eaten, absorbed through the skin, or inhaled. If this is the case, then the word "POISON" must also be included in red letters on the front panel of the product label.

WARNING indicates the pesticide product is moderately toxic if eaten, absorbed through the skin, inhaled, or it causes moderate eye or skin irritation.

CAUTION means the pesticide product is slightly toxic if eaten, absorbed through the skin, inhaled, or it causes slight eye or skin irritation.

Basically all of them signal that a product is toxic. If you see any of these words on your product, choose a different one! Even if another part of the label that it is "natural" or doesn't contain certain ingredients, if you see the words Caution, Warning or Danger – Avoid It!



2. **Make Your Own All-Natural Homemade Cleaners.** Cleaning actually rarely requires specialized or expensive products (another bonus – you can save money by going toxin-free!). Homes can be safely cleaned with a few non-toxic ingredients.

Basic Cleaning Ingredients Every Home Should Have:

1. Baking Soda
2. White Vinegar
3. Lemons and/or lemon juice
4. Salt (coarse Kosher salt works best)
5. Borax
6. Washing Soda
7. Castile soap (Dr. Bronner's is great).
8. Olive oil
9. *Optional: Essential oils (great anti-microbial options include cinnamon bark, lemongrass, tea tree, thyme and peppermint).

And on the following page is a list of Homemade All-Natural Cleaners that you can print out and keep in the drawer in your kitchen, laundry room etc.!

3. **Choose Brands You Trust.** If you don't want to make your own, you can find plenty of environmentally friendly products in your local health food store or online. Several good brands include:
   - **The Honest Company** - Wonderful plant-based non-toxic cleaners for the whole house, laundry, dishes and more. They list every ingredient.
   - **Branch Basics** - Cleaners made from 100% plant-based ingredients.
   - **Thieves cleaning products from Young Living** - Made from plant materials and essential oils.
   - **Ecocover** – They have everything from safe laundry soap to dishwasher tablets.
   - **Heartland Natural** - Cleaning solutions are made from botanicals and amino acids and can be used for everything from dishes to laundry and carpets).
   - **Seventh Generation** - cleaning products of all types and found in most all health food stores and grocers.

   ***BUT be sure to check the ingredients labels even for these brands and other "green" ones! For example, Seventh Generation's dishwashing soap actually contains SLS. I don't want any of that residue on my dishes/touching my food/drinks, and for a long time I was using it to wash my hands too!*

4. **Use the EWG's Guide to Healthy Cleaning.** This guide has the EWG's recommendations for non-toxic cleaning products (even listed by type such as All-Purpose, Bathroom, Dishwashing, Floor etc.) as well as a database of over 2,000 products that each have a ranking (A through F) based on the ingredients they contain and their potential health hazards so that you can search products you already own and those you might see in the store to see how they stack up.
   Visit: http://www.ewg.org/guides/cleaners

Naturopathic Ways Homemade All-Natural Cleaners

SHOPPING LIST:

1. White vinegar
2. Baking soda
3. Lemons and/or lemon juice
4. Castile soap (Dr. Bronner's is great)
5. Borax
6. Washing Soda**
7. Salt (coarse kosher salt)
8. Olive oil
9. Essential oils* (*Optional: great anti-microbial options include cinnamon bark, lemongrass, tea tree, thyme and peppermint).

**To make homemade washing soda, see recipe at bottom.

All-Purpose Cleaner and Disinfectant

- 1 cup white vinegar
- 1 cup water
- 10-20 drops of essential oil (optional)

Just put it in a spray bottle and use it on any hard surfaces -- countertops, glass, windows and mirrors. Also works great on stainless steel appliances!

Disinfectant
Just add ½ cup of borax to 1 gallon of warm water (this was even used at a hospital to replace other disinfectants & the bacteriologist reported that it satisfied all germicidal requirements!!)

Soft Scrub Bathroom Cleaner

- ¾ cup baking soda
- Juice from ½ lemon (about ¼ cup)
- 3 tablespoons salt
- 3 tablespoons castile soap
- ½ cup vinegar 10 drops of essential oil (optional)

Mix all ingredients together in medium bowl to make a paste and use a scrub brush or sponge to apply to tub, shower walls, and sinks. Be sure to test a small area to make sure the paste does not scuff surfaces; if it does, just eliminate the salt from the mixture. Then rinse well with water and a wet rag.

Laundry Detergent

- 1 cup castile soap
- 1 cup washing soda
- 1 cup baking soda

Use one tablespoon per load.
Other tips: Add a half-cup of lemon juice or vinegar to the rinse cycle or fabric softener compartment as a fabric softener and anti-cling solution. To remove stains, use hydrogen peroxide prior to washing but be sure to test first to make sure it doesn't lift color.

Note: This recipe can be safely used in HE washers.

Dishwashing Detergent

- 1 cup borax
- 1 cup baking soda or washing soda
- ½ cup coarse kosher salt
- white vinegar (for rinse compartment)

Mix first 3 ingredients well and store in a tightly sealed container. Use 2 tablespoons per dishwasher load. Then add the vinegar to the rinse cycle.

*If you have hard water, double the amount of baking soda in your mixture.

Toilet Bowl Cleaner

- 1 cup baking soda
- 1 cup white vinegar

Sprinkle toilet bowl with baking soda & then slowly pour in the vinegar, being sure vinegar covers as much of the bowl surface as possible. The baking soda will react with the vinegar (this is totally normal). Then use your toilet brush to scrub the surface and remove any rings or stains & flush!
Tip: Let ingredients soak for a while to make for easy scrubbing, especially on persistent stains like toilet bowl rings.

Tip: To remove mineral buildup, put 1-2 denture cleaner tablets in the toilet bowl and let sit overnight.

Silver Polish

For silverware, place silver on a piece of aluminum foil in a pot, then add 3 inches of water, 1 teaspoon of baking soda & 1 teaspoon salt. Boil for a few minutes rinse and dry.

For jewelry, fill a glass jar half full with thin strips of aluminum foil. Add 1 tablespoon of salt and fill with cold water. Drop items in the jar for a few minutes, rinse and dry.

A soft bristle toothbrush and toothpaste also work well!

Oven Cleaner

Baking soda and water – that's it!

You want to avoid heating up toxic chemical residues with your food, so this one is great and really easy!

Just make a past of baking soda and water and spread on oven interior. Leave it there overnight with the over door closed, and then remove with a sponge or nylon scrub pad.

Drain Cleaner

- ½ cup baking soda
- ½ cup white vinegar
- 2 cups boiling water

Pour baking soda down the drain. Then add white vinegar and cover. Let sit for 5-10 minutes. Pour boiling water down the drain (the vinegar and baking soda break down fatty acids, allowing the clog to wash down the drain). This method is also a good preventative and can be used weekly to prevent drain clogs.

Furniture Polish

- 1 cup olive oil
- 1/2 cup white vinegar or lemon juice
- 10 drops lemon essential oil (optional)

Mix well and apply a small amount to a soft rag. Spread evenly over furniture surface and polish with a dry cloth.

Floor Cleaner

- 1 cup white vinegar
- ½ cup baking soda
- 8-10 cups hot water
- 1 tablespoon borax
- 1 tablespoon washing soda
- 30 drops of essential oil (optional)

Mix vinegar and baking soda together in bucket; add hot water, borax, washing soda and essential oil and mix until all powder is dissolved. Use mop or sponge to wipe down floor and wipe dry with clean dry towel.

Carpet Stain Remover

- ¼ cup borax
- ¼ cup vinegar
- ¼ cup salt

Rub paste into carpet and leave on for a few hours. Vacuum and voila!

****Homemade Washing Soda: All you need is baking soda!**
Fill a wide baking dish with baking soda. Heat in the oven at 400 degrees until all the baking soda becomes washing soda. It will be more grainy (less powdery), more dull/opaque (not crystallized) and will not clump together.

Section 5: Quick Tips for Toxin-Free Travel, Office and Daily Activities

When you're not at home -- whether at the office, around town or travelling by plane, train, car or bus, here are a few things you can do to reduce the toxins you are exposed to.

1. **Don't touch those receipts!** Almost all thermal receipts contain BPA, which can get onto your skin and into your bloodstream. And BPA, even at low levels, has been shown to have multiple negative health effects. (Check out: http://www.naturopathicways.com/?s=receipts for more details). *So what can you do? Decline receipts in the first place, have them emailed to you if that's an option, or carry a Ziploc bag so that you can carry the receipts in it and they don't touch everything else in your purse/bag. Especially don't touch food right after touching a receipt as that has been shown to track BPA onto the food, and you need to wash your hands with soap and water – that hand sanitizer doesn't do the trick and actually increases your absorption of the BPA!*

2. **Avoid Styrofoam coffee cups and plastic coffee-cup lids and bring your own stainless steel coffee mug with you!** Millions of people stop by Starbucks or their local coffee shop daily and get a coffee with that plastic lid… and then unknowingly ingest styrene. After doing this day after day and often multiple times a day for years this styrene exposure adds up!! Styrofoam cups and plastic coffee-cup coffee lids (yes, including those they use at Starbucks) both contain the chemical styrene, which has been linked to cancer[90, 91] as well as vision and hearing loss, impaired memory and concentration, and nervous system effects.[91] And unfortunately most Americans have it in their bodies from exposure. The principal forms of styrene exposure for the general population include breathing indoor air contaminated with cigarette smoke or automobile exhaust, *consuming food items in contact with polystyrene foam packaging and to-go containers,* and drinking contaminated water. A study published in the journal *Food and Chemical Toxicology* confirmed that styrene does in fact leach out of these materials when the food (or coffee) inside is hot.[92] You really don't want to be drinking styrene-laced coffee! *The best option – bring your own stainless steel coffee mug with you to work and the local coffee shop. And, if you have leftovers or takeout that is in a Styrofoam container transfer it to your own glass or stainless steel storage container as soon as you can and definitely do not heat food in it!*

3. **Avoid plastic water bottles and bring your own glass or stainless steel water bottle with you wherever you go.** Ever experience that plastic taste of bottled water? Unfortunately, the plastic from the bottles has been shown to leach xenoestrogenic (estrogen-mimicking) chemicals such as BPA and phthalates into the water (especially if it has gotten hot or been reused multiple times which causes it to break down). (The worst offenders are plastics with the recycling symbol numbers 1, 3, 6 and 7; if it has a #2, #4 or #5 recycling symbol, it is less toxic but still best to avoid it.) *I always carry my glass water bottle in my purse and refill it with filtered water.* When traveling I take a few empty glass and/or stainless steel

water bottles with me in my carry-on so that I can fill it with filtered water once I am through airport security and inside the terminal. (Many terminals now have water "filling stations" and if they don't I usually go to a Starbucks -- they can be found in most any terminal nowadays -- and I know they have filtered water. I just ask them to fill my bottles with filtered water and so far all of them have helped me with no questions asked.) This way I can avoid the airplane water and the plastic water bottles (which they charge a lot for inside the terminal anyways!). This is also a great option for roadtrips because you can almost always find a restaurant or coffee shop to refill your bottles (hopefully with filtered water!). And I haven't yet tried this myself, but I even found several portable water filter "straws" online that are very reasonably priced ($15-$30) and claim to be BPA-free and have extremely high levels of filtration. For more info on plastics check out: http://toxindetective.com/plastics-poison-tips-protect-health/

4. **Support restaurants that use local organic food.** You'll be consuming fewer pesticides, and with your dollar you'll be encouraging more restaurants to follow suit!

5. **Suggest that your favorite restaurants and stores not use toxic air fresheners.** As you know from Section 3, synthetic air fresheners of all types will release a myriad of toxic chemicals. Customers and employees shouldn't be constantly exposed to them (especially because some people have more reactions than others). Suggest that they use some of the toxin-free alternatives for better-smelling establishments instead (see Section 3 – tip #2).

6. **No air fresheners in the car or office either.** You definitely don't want to be constantly breathing in the chemical fragrance concoction the entire time you drive in the small-enclosed car space! Plus, if you have one of those air fresheners that hangs from the rearview mirror it's right in front of your face.

7. **Turn off incoming air with car vent when you are behind a diesel truck or other polluting smelly vehicle.** Diesel exhaust contains a mixture of more than several hundred different organic and inorganic components, including many chemicals that have been designated as toxic air pollutants. Because these carcinogens are present in both gas and particle form when they spew out of the back of a truck, exposure to diesel has been linked to lung cancer, respiratory conditions and other health impacts.[93] *To prevent unnecessary exposure to diesel and exhaust fumes and particulate, when you are in lots of traffic or are behind or near an especially toxic vehicle (you know those where you can see the black stuff coming out of the tailpipe?), keep your car windows closed, close your air vents and use the recirculation feature in the car if you have one. (I'm also not a huge fan of driving with the windows wide open on the freeway/highway).*

8. **Carry triclosan-free hand sanitizer.** Recent studies have raised questions about whether triclosan might be hazardous to human health. Research has shown that triclosan alters hormone regulation in animals, might contribute to the development of antibiotic-resistant germs, might be harmful to the immune system and

contributes to allergies in children.[94, 95, 96, 97] There are also concerns about triclosan's link with the highly carcinogenic chemical dioxin.[94] When you use a product containing triclosan such as many toothpastes and antibacterial products, you absorb a small amount through your skin or mouth. A 2008 study, which was designed to assess exposure to triclosan in a representative sample of U.S. children and adults found triclosan in the urine of nearly 75 percent of those tested.[98] Triclosan has also been detected in human breast milk samples. And according to the U.S. FDA, there's no evidence that antibacterial soaps and body washes containing triclosan provide any extra benefits![99] So since it does pose unknown health risks and it's widespread use in products washed down the drain is now contaminating waterways, I say avoid it! *Trust me, I get that airplanes, door handles and public restrooms are icky, but instead of triclosan-based products that have potential risks, carry triclosan-free hand sanitizers. There are now lots of great ones on the market such as the Honest Company Sanitizer Gel, All Terrain brand fragrance-free Hand Sanz, and EO Essential Oils Organic Hand Sanitizer spray.*

9. **Don't sit in the car while it's running in the garage (especially if your garage is attached to your house).** There are several reasons for this: idling tailpipes spew out the same pollutants that form unhealthy smog and soot as those from moving cars (nitrogen oxide, particulate matter, carbon monoxide and VOCs are the main health-harming pollutants in vehicle emissions) and these have been linked to serious human illnesses including asthma, chronic bronchitis, and cancer. If you're idling your car in the enclosed garage space, then these toxins will be sucked back in! And especially if your garage is attached to your house, you don't want to be filling it with these pollutants, which can creep into your home when the door is open, through spaces around the door or through vents. AND, garages are unfortunately often filled with stored pesticides, old paints, etc., so if you're idling your car in the garage (which many people likely do in the winter) these unhealthy fumes get sucked in as well. *If you do need to warm up the car, don't do it in the garage and try not to sit in it for too long. If you can, immediately open some windows to ventilate the car once you start moving.*

10. **Protect yourself from toxins at the gas station.** Anyone who has ever pumped gas knows the telltale smell of fuel, especially if someone has leaked some of it on the ground. That comes from the fuel evaporating into the air you're breathing in. In fact, in a 2010 study published in the *Journal of Environmental Management*, researchers found that the levels of two common gasoline related pollutants and known carcinogens, benzene and hexane, were higher in the area around gas stations than in normal automobile traffic.[100] *While we can't avoid the gas station in our car-centric worlds nowadays, I take a few simple steps to at least reduce my exposure to gasoline and its fumes. I don't linger when I am filing the tank and I make sure to avoid leaking any fuel. To avoid potentially touching gasoline, I keep latex-free gloves in my car and put them on before pumping gas. It may seem extreme to some, but I feel a lot better knowing my skin won't come into contact with the gasoline and that my hands won't smell like fuel afterwards!*

11. **Don't hang out next to the copy machine or laser printer.** This tip is just to be on the safe side. Many people report feeling unwell from being exposed day after day to these machines in their workplace, and anyone who has been in a photocopy room or facility knows there is a definite "photocopier/printer" smell. A primary toxic chemical used in these machines is styrene, which can be released by vapors emitted from the machines.[101] Styrene is a suspected carcinogen, neurotoxin and cardiovascular, endocrine, kidney, respiratory and reproductive toxicant, to mention a few. OSHA states that styrene causes various levels of irritation to the nose and throat, may cause headaches, dizziness and fatigue, impair co-ordination and balance and states that "a number of studies have reported on the effect to the central nervous system of repeated exposure to styrene vapors".[102] According to data published by the U.S. Agency for Toxic Substances and Disease Registry, a federal agency, **t**he principal route of styrene exposure for the general population is probably by inhalation of contaminated indoor air and *the workplace or home office may have substantially higher levels of airborne styrene due to emissions from laser printers and photocopiers.*[101] The National Resources Defense Council also advises that people reduce their styrene exposure by not smoking, by avoiding idling their vehicles (styrene is formed during burning, so it is found in cigarettes and car exhaust), *and by using photocopiers in a well-ventilated area.*[104] They also suggest that when buying a new copier, to look for ones that meet standards set by Green Guard or Blue Angel. As for those printers, they aren't much better than the copiers. The August 7, 2007 issue of TIME featured an article, 'Is Your Printer Making You Sick?'.[104] The article reported that an Australian study performed by the Queensland Institute of Technology determined that nearly 30% of 62 printers they tested emitted high levels of ultrafine toner particles. Among the manufacturers of the printers were Canon, Hewlett-Packard, Toshiba and Ricoh. The high levels of particles emitted made the air potentially as hazardous as cigarette smoke and were five times higher during working hours than non-working hours. *So what can you do? If you're lucky enough to have a window, open it often to help circulate the fresh air. If possible, sit as far away from the copy machine and large printers as possible to reduce exposure to airborne particles. Can't sit further from the source? Invest in a portable air cleaner/purifier and bring it to work to help reduce the toxins floating around your office or cubicle and let yourself breathe a bit cleaner. Since we spend the majority of our weekdays at work, the air you breath there is important!! And don't linger in the photocopier room if you can avoid it.*

12. **Use green plants as natural air detoxifiers at the office.** If you're sitting all day long in an office full of off-gassing wall-to-wall carpeting, upholstery, copy machines, printers and computers, you might consider investing in a few office plants – spider plants and ferns are great options -- to help reduce those toxins (see Section 3, Tip 13 for all the cool studies showing that these plants can purify the air!). Even one lone potted plant can help clean up roughly 100 square feet of space.

References:

1. U.S. Dept. of Health and Human Services, National Institutes of Health and National Cancer Institute. 2008-2009 Annual Report - President's Cancer Panel. "Reducing Environmental Cancer Risk" (April 2010). Available at: http://deainfo.nci.nih.gov/advisory/pcp/annualReports/pcp08-09rpt/PCP_Report_08-09_508.pdf
2. Carwile JL, Ye X, Zhou X, Calafat AM, Michels KB. Canned Soup Consumption and Urinary Bisphenol A: A Randomized Crossover Trial. *JAMA.* 2011;306(20):2218–2220. doi:10.1001/jama.2011.1721
3. Cohen, Alison, Sarah Janseen, and Gina Solomon. *Clearing the Air: Hidden Hazards of Air Fresheners*. Natural Resources Defense Council, 2007. Available at: https://www.nrdc.org/sites/default/files/airfresheners.pdf.
4. http://www.sciencetimes.com/articles/6043/20150504/scientists-warn-chemicals-pizza-box.htm
5. https://www.ewg.org/research/body-burden-pollution-newborns. See also EWG 10 Americans Study video discussion by EWG's Executive Director Ken Cook, available at: http://www.ewg.org/news/videos/10-americans-ewgs-ken-cook-discusses-pollution-people
6. https://www.ewg.org/research/minority-cord-blood-report/bpa-and-other-cord-blood-pollutants
7. Woodruff TJ, Zota AR, Schwartz JM. Environmental chemicals in pregnant women in the United States: NHANES 2003-2004. *Environ Health Perspect.*2011;**119**(6):878-885.
8. US Environmental Protection Agency. *America's Children and the Environment*. 3rd ed. Washington, DC: US EPA; 2013. https://www.epa.gov/ace/ace-publications#order. Accessed March 27, 2016.
9. Kabir ER, Rahman MS, Rahman I. A review on endocrine disruptors and their possible impacts on human health. *Environ Toxicol Pharmacol.* 2015;**40**:241-258.
10. American College of Obstetricians and Gynecologists, American Society for Reproductive Medicine and University of California, San Francisco Program on Reproductive Health and the Environment, Committee Opinion entitled "Exposure to Toxic Environmental Agents" (2013). Available at: http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Exposure-to-Toxic-Environmental-Agents
11. EWG Body Burden study; available at: http://www.ewg.org/sites/bodyburden1/methodology.php
12. Zota AR, et al. "Self-reported chemicals exposure, beliefs about disease causation, and risk of breast cancer in the Cape Cod Breast Cancer and Environment Study: a case-control study." *Environmental Health.* 2010; 9(40).doi:10.1186/1476-069X-9-40. Available at: http://www.ehjournal.net/content/pdf/1476-069X-9-40.pdf
13. U.S. Department of Health and Human Services Centers for Disease Control and Prevent, *Fourth National Report on Human Exposure to Environmental Chemicals*.

2009. Available at: http://www.cdc.gov/exposurereport/pdf/fourthreport_executivesummary.pdf

14. Grossman, E. "Subtle but potentially serious: health effects of low-level pesticide exposure." http://scienceblogs.com/thepumphandle/2012/11/06/subtle-but-potentially-serious-health-effects-of-low-level-pesticide-exposure/
15. https://www.niehs.nih.gov/health/materials/endocrine_disruptors_508.pdf
16. http://www.ewg.org/skindeep/2004/06/15/exposures-add-up-survey-results/
17. Houlihan J, Brody C, Schwan B. "Not Too Pretty: Phthalates, Beauty Products and the FDA." 2002. Courtesy of Environmental Working Group, Coming Clean, and Health Care Without Harm. Available at: http://www.nottoopretty.org/images/NotTooPretty_final.pdf
18. Swan SH, Main KM, Liu F, et al. "Decrease in Anogenital Distance among Male Infants with Prenatal Phthalate Exposure." *Environmental Health Perspectives*. 2005;113(8):1056-1061. doi:10.1289/ehp.8100.
19. Bustamante-Montes LP, Hernández-Valero MA, Flores-Pimentel D, et al. "Prenatal exposure to phthalates is associated with decreased anogenital distance and penile size in male newborns." *Journal of developmental origins of health and disease*. 2013;4(4). doi:10.1017/S2040174413000172.
20. Bornehag CG, Carlstedt F, Jönsson BA, Lindh CH, Jensen TK, et al. "Prenatal Phthalate Exposures and Anogenital Distance in Swedish Boys." *Environmental Health Perspectives*, 2014. doi: 10.1289/ehp.1408163 Available at: http://ehp.niehs.nih.gov/1408163/
21. http://www.epa.gov/ace/pdfs/Biomonitoring-Phthalates.pdf
22. Koo J-W, Parham F, Kohn MC, et al. "The association between biomarker-based exposure estimates for phthalates and demographic factors in a human reference population. "*Environmental Health Perspectives*. 2002;110(4):405-410. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240804/
23. http://www.ewg.org/sites/default/files/report/SafeCosmetics_FragranceRpt.pdf
24. Luccio-Camelo DC, Prins GS. "Disruption of Androgen Receptor Signaling in Males by Environmental Chemicals." *The Journal of steroid biochemistry and molecular biology*. 2011;127(1-2):74-82. doi:10.1016/j.jsbmb.2011.04.004.
25. http://www.ewg.org/research/pesticide-soap-toothpaste-and-breast-milk-it-kid-safe/triclosan-toxicity
26. Darbre, P. D. "Aluminium, antiperspirants and breast cancer." *Journal of Inorganic Biochemistry*. 2005; 99(9): 1912-1919.
27. McGrath KG. "An earlier age of breast cancer diagnosis related to more frequent use of antiperspirants/deodorants and underarm shaving." *European Journal of Cancer* 2003; 12(6):479–485.
28. http://www.ewg.org/news/testimony-official-correspondence/cdc-americans-carry-body-burden-toxic-sunscreen-chemical

29. http://news.usc.edu/5925/Study-Points-to-Bladder-Cancer-Risk-From-Long-term-Hair-Dye-Use/

30. Zhang, Yawei, et al. "Hair-coloring product use and risk of non-Hodgkin's lymphoma: a population-based case-control study in Connecticut." *American Journal of Epidemiology*. 2004*;* 159(2): 148-154.

31. Yang, Chun Z., et al. "Most plastic products release estrogenic chemicals: a potential health problem that can be solved." *Environmental Health Perspectives*. 2011; 119(7): 989.

32. http://www.webmd.com/cancer/news/20050113/is-teflon-chemical-toxic-epa-seeks-answers

33. http://www.epa.gov/oppt/pfoa/pubs/pfoarisk.html

34. http://www.ewg.org/research/bird-death-diaries/100-websites-discuss-birds-and-teflon-toxicosis

35. Waritz, R.S. "An industrial approach to evaluation of pyrolysis and combustion hazards." *Environmental Health Perspectives*. 1975; 11:197-202.

36. http://www.ewg.org/research/canaries-kitchen/teflon-kills-birds

37. Pratico D, Uryu K, Sung S, et al. "Aluminum modulates brain amyloidosis through oxidative stress in APP transgenic mice." FASEB J. 2002;16(9):1138-40.

38. Rondeau V. "A review of epidemiologic studies on aluminum and silica in relation to Alzheimer's disease and associated disorders." *Review Environmental Health*. 2002;17(2):107-21.

39. Klein J, Mold M, Mery L, Cottier M, Exley C. "Aluminium content of human semen: implications for semen quality." *Reproductive Toxicology*. 2014.

40. Gramiccioni L, Ingrao G, Milana MR, et al. "Aluminium levels in Italian diets and in selected foods from aluminium utensils." *Food Additives and Contaminants*. 1996; 13(7):767-774.

41. Graziano JH, Blum CB, Lolacono NJ, et al. "A human in vivo model for the determination of lead bioavailability using stable isotope dilution." *Environmental Health Perspectives*. 1996;104(2):176-179.

42. Carwile JL, Ye X, Zhou X, Calafat AM, Michels KB. "Canned Soup Consumption and Urinary Bisphenol A: A Randomized Crossover Trial." *JAMA*. 2011;306(20):2218-2220. doi:10.1001/jama.2011.1721.

43. Sanghyuk B, Hong Y-C. "Exposure to Bisphenol A From Drinking Canned Beverages Increases Blood Pressure: Randomized Crossover Trial *Hypertension*." 2015;65:313-319. doi: 10.1161/HYPERTENSIONAHA.114.04261.

44. Smith-Spangler C, Brandeau ML, Hunter GE, Bavinger JC, Pearson M, Eschbach PJ, et al. "Are Organic Foods Safer or Healthier Than Conventional Alternatives?: A Systematic Review." *Annals of Internal Medicine*. 2012;157:348-366. doi:10.7326/0003-4819-157-5-201209040-00007.

45. http://www.nrdc.org/health/kids/farm/chap1.asp

46. Curl CL, Fenske RA, Elgethun K. "Organophosphorus pesticide exposure of urban and suburban preschool children with organic and conventional diets." *Environmental Health Perspectives*. 2003;111(3):377-382.

47. Lu C, Toepel K, Irish R, Fenske RA, Barr DB, Bravo R. "Organic Diets Significantly Lower Children's Dietary Exposure to Organophosphorus Pesticides." *Environmental Health Perspectives*. 2006;114(2):260-263. doi:10.1289/ehp.8418.

48. https://www.aaemonline.org/gmo.php

49. http://articles.mercola.com/sites/articles/archive/2011/02/24/are-you-or-your-family-eating-toxic-food-dyes.aspx

50. http://articles.mercola.com/sites/articles/archive/2010/01/30/if-you-drink-coffee-make-sure-it-is-organic.aspx

51. http://www.coffeehabitat.com/2006/12/pesticides_used_2/

52. http://www.mnn.com/food/healthy-eating/blogs/are-teavana-and-celestial-seasonings-teas-safe-to-consume

53. http://chriskresser.com/shaking-up-the-salt-myth-healthy-salt-recommendations

54. Gale RW, WL Cranor, DA Alvarez, JN Huckins, JD Petty and GL Robertson. "Semivolatile organic compounds in residential air along the Arizona – Mexico border." *Environmental Science and Technology*. doi: 10.1021/es803482u.

55. American Society for Horticultural Science. "Houseplants Cut Indoor Ozone." ScienceDaily. ScienceDaily, 9 September 2009. www.sciencedaily.com/releases/2009/09/090908103634.htm

56. http://www.acmt.net/_Library/docs/IndoorAirPolution.pdf

57. Steinemann, AC. "Fragranced consumer products and undisclosed ingredients." *Environmental Impact Assessment Review.* 2009; 29(1): 32-38. doi:10.1016/j.eiar.2008.05.002.

58. Rahman, MM, Kim, K-H. "Potential hazard of volatile organic compounds contained in household spray products." *Atmospheric Environment.* 2014; 85: 266-274.

59. Massoudi, R., Hamidi, A. "ENVR 86-Emission products of petroleum-based candles." *ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY*. Vol. 238. 1155 16TH ST, NW, WASHINGTON, DC 20036 USA: AMER CHEMICAL SOC, 2009. Available at: http://www.scsu.edu/news_article.aspx?news_id=832

60. Knight L., Levin A., Mendenhall C. "Candles and Incense as Potential Sources of Indoor Air Pollution: Market Analysis and Literature Review." (EPA/600/R-01/001). U.S. Environmental Protection Agency, Washington, D.C., 2001. Available at: http://nepis.epa.gov/Adobe/PDF/P1009BZL.pdf

61. Nriagu, J.O., Kim M-J. "Emissions of lead and zinc from candles with metal-core wicks." *Science of the Total Environment.* 2000; 250(1):37-41. Available at: http://ns.umich.edu/Releases/1999/Oct99/r100699.html; http://ur.umich.edu/9900/Oct18_99/8.htm

62. U.S. Consumer Product Safety Commission. “CPSC Bans Candles with Lead-Cored Wicks.” April 7, 2003. Release No. 03-105. Available at: http://www.cpsc.gov/en/Newsroom/News-Releases/2003/CPSC-Bans-Candles-With-Lead-Cored-Wicks-/

63. Odabasi, M. "Halogenated volatile organic compounds from the use of chlorine-bleach-containing household products." *Environmental Science & Technology*. 2008; 42(4): 1445-1451.

64. University of Washington. "Toxic Chemicals Found In Common Scented Laundry Products, Air Fresheners." ScienceDaily. ScienceDaily, 24 July 2008. Available at: http://www.sciencedaily.com/releases/2008/07/080723134438.htm

65. Steinemann, A. C., Gallagher, L. G., Davis, A. L., MacGregor, I. C. “Chemical emissions from residential dryer vents during use of fragranced laundry products.” *Air Quality, Atmosphere & Health*. 2013. *6*(1): 151-156. Available at: http://www.preventcancernow.ca/wp-content/uploads/2011/10/Steinemann-et-al.-2011.pdf

66. http://ntp.niehs.nih.gov/ntp/roc/content/profiles/tetrachloroethylene.pdf

67. http://www.nrdc.org/living/stuff/files/CBD-DryCleaning-FS.pdf

68. “Fact Sheet: Dry Cleaners and PCE”. Colorado Department of Public Health and the Environment. 2002. Available at: http://www.cdphe.state.co.us/hm/drycleaner.pdf

69. Agency for Toxic Substances and Disease Registry (ATSDR). “Toxicological Profile for Tetrachloroethylene (PERC): Potential for Human Exposure.” Available at: http://www.atsdr.cdc.gov/toxprofiles/tp18-c6.pdf

70. Sherlach, K. S., Gorka, A. P., Dantzler, A. and Roepe, P. D. “Quantification of perchloroethylene residues in dry-cleaned fabrics." *Environmental Toxicology and Chemistry*. 2011; 30: 2481–2487. doi: 10.1002/etc.665.

71. http://www.beyondpesticides.org/lawn/factsheets/30health.pdf

72. Rudel, R, et al. “Phthalates, Alkylphenols, Pesticides, Polybrominated Diphenyl Ethers, and Other Endocrine-Disrupting Compounds in Indoor Air and Dust,” *Environmental Science and Technology*. 2003; 37(20): 4543-4553; Nishioka, M., et al. "Distribution of 2,4-D in Air and on Surfaces Inside Residences After Lawn Applications: Comparing Exposure Estimates from Various Media for Young Children." *Environmental Health Perspectives*. 2001; 109(11); Lewis, R., et al. 1991. "Determination of Routes of Exposure of Infants and Toddlers to Household Pesticides: A Pilot Study," EPA, Methods Research Branch.

73. EPA. 1996. Environmental Health Threats to Children. Office of the Administrator. 175-F-96-001.

74. Lowengart, R. et al. “Childhood Leukemia and Parent’s Occupational and Home Exposures.” *Journal of the National Cancer Institute*. 1987; 79:39.

75. Salam, M.T., et al. "Early Life Environmental Risk Factors for Asthma: Findings from the Children’s Health Study," *Environmental Health Perspectives*. 2004; 112(6): 760.

76. American Cancer Society. “Known and Probable Human Carcinogens.” Available at: http://www.cancer.org/cancer/cancercauses/othercarcinogens/generalinformationaboutcarcinogens/known-and-probable-human-carcinogens

77. https://ntp.niehs.nih.gov/ntp/roc/content/profiles/chloroform.pdf

78. https://ntp.niehs.nih.gov/ntp/roc/content/profiles/bromodichloromethane.pdf

79. Wolverton, BC, Johnson A, Bounds K. and NASA Office of Technology Utilization Division. “Interior Landscape Plants for Indoor Air Pollution Abatement.” 1989; Available at: http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19930073077.pdf

80. Papinchak, H. L., Holcomb, E.J., Best, T.O., Decoteau, D.R. “Effectiveness of Houseplants in Reducing the Indoor Air Pollutant Ozone.” *HortTechnology*. 2009; 19(2): 286-290. Available at: http://horttech.ashspublications.org/content/19/2/286.full.pdf

81. Anderson, R.C. “Toxic Emissions from Carpets.” *Journal of Nutritional and Environmental Medicine*, 1995, 5.4: 375-386 (doi: 10.3109/13590849509007243).

82. Katsoyiannis, A, Leva, P, and Kotzias, D. "VOC and carbonyl emissions from carpets: A comparative study using four types of environmental chambers." *Journal of Hazardous Materials* 152.2 (2008): 669-676.

83. Dodson, R.E., Perovich, L.J., Covaci, A. Van den Eede, N. et al. “After the PBDE Phase-Out: A Broad Suite of Flame Retardants in Repeat House Dust Samples from California.” *Environmental Science & Technology*. 2012; 46(24): 13056-13066. doi: 10.1021/es303879n

84. Silent Spring Institute. "Many flame retardants in house dust at unsafe levels, study finds." ScienceDaily. 28 November 2012. Available at: http://www.sciencedaily.com/releases/2012/11/121128093810.htm

85. Grossman, E. “Are Flame-Retardants Safe? Growing Evidence Says ‘No’.” 2011. Available at: http://e360.yale.edu/feature/pbdes_are_flame_retardants_safe_growing_evidence_says_no/2446/

86. http://www.ewg.org/research/flame-retardants-2014

87. http://sd11.senate.ca.gov/news/2014-09-30-governor-signs-leno-bill-informing-consumers-about-flame-retardant-chemicals

88. Zota AR, Aschengrau A, Rudel RA, Brody JG. “Self-reported chemicals exposure, beliefs about disease causation, and risk of breast cancer in the Cape Cod Breast Cancer and Environment Study: a case-control study.” *Environmental Health*. 2010; 9: 40.

89. Nazaroff, WW. “Indoor air chemistry: cleaning agents, ozone and toxic air contaminants.” Available at: http://www.arb.ca.gov/research/single-project.php?row_id=60560

90. http://saferchemicals.org/chemicals/styrene/

91. IARC (1994). Styrene. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Some Industrial Chemicals. Vol. 60:235-320.

92. Lickly, T. D., Lehr, K.M. and Welsh, G. C. "Migration of styrene from polystyrene foam food-contact articles." *Food and chemical toxicology.* 1995; 33(6): 475-481.

93. Kagawa, J. "Health effects of diesel exhaust emissions—a mixture of air pollutants of worldwide concern." *Toxicology.* 2002; 181: 349-353.

94. http://www.beyondpesticides.org/antibacterial/health

95. Witorsch RJ, et al. "Personal care products and endocrine disruption: A critical review of the literature." *Critical Reviews in Toxicology*. 2010;40:1.

96. Rees Clayton EM, et al. "The impact of bisphenol A and triclosan on immune parameters in the U.S. population. NHANES 2003-2006." *Environmental Health Perspectives*. 2011;119:390.

97. Bertelsen RJ, et al. "Triclosan exposure and allergic sensitization in Norwegian children." *Allergy*. 2013;68:84.

98. Calafat AM, et al. "Urinary concentrations of triclosan in the U.S. population: 2003-2004." *Environmental Health Perspectives*. 2008;116:303.

99. U.S. Food and Drug Administration. "Triclosan: What consumers should know." Available at: http://www.fda.gov/forconsumers/consumerupdates/ucm205999.htm.

100. Plataforma SINC. "Gas stations pollute their immediate surroundings, Spanish study finds." ScienceDaily. 5 February 2011. Available at: http://www.sciencedaily.com/releases/2011/02/110204130315.htm

101. http://www.atsdr.cdc.gov/toxprofiles/tp53-c6.pdf

102. https://www.osha.gov/SLTC/styrene/

103. http://www.nrdc.org/living/chemicalindex/styrene.asp

104. Masters, C. "Is Your Printer Making You Sick?" TIME. August 7, 2007. http://content.time.com/time/health/article/0,8599,1650602,00.html/

Meet Dr. Stephanie!

Dr. Stephanie Berg is a licensed Naturopathic Doctor with a passion for women's health and fertility and provides care to women at all stages of life – from menarche to menopause and beyond – so that they can feel their best and focus on doing and being all they want in the world. She is especially passionate about environmental medicine and the impact that environmental toxins have on hormonal health, fertility and the health of future generations and works with patients prior to conception to ensure their bodies' are in an optimal state to support a healthy pregnancy. With her training as a naturopathic doctor, she believes it is important to understand the entire person in order to address the root cause of a patient's health concerns, and therefore offers each patient a comprehensive individualized treatment plan to ensure that her or his goals are reached. She blends science-based natural therapies with cutting-edge knowledge gained from modern medicine incorporating a number of healing modalities when caring for her patients, including medical-based nutrition and dietary recommendations, botanical medicine, homeopathy, nutrient supplementation and lifestyle recommendations. She believes that naturopathic medicine is best used in conjunction with conventional medical care when NDs work in collaboration with MDs, DOs, DCs, acupuncturists, and other healthcare practitioners as a part of a patient's healthcare team. She provides naturopathic care at West Coast Women's Reproductive Center.

Education and Training:

- Doctor of Naturopathic Medicine, Bastyr University California
- Juris Doctor, Stanford University Law School
- Bachelor of Arts in Anthropology, Summa Cum Laude, Princeton University

My Story:

My concern with toxins actually began at a young age. Since my early teenage years, I have been acutely aware of all of the chemicals around me from strong perfumes, hairspray, fumes from paint, car and truck exhaust, air fresheners, dry cleaning sheets that smelled up the house, strong cleaning products … it just didn't seem that it could be good for anyone to be inhaling, absorbing and ingesting these things.

But it wasn't until 2013 that I started really researching this topic and discovered there may actually be something to my concerns. I was shocked to learn that many of the familiar products I used every day contained numerous chemicals that could be deleterious to human health. And this includes products that I thought were good for me, such as antibacterial soap. As I learned more about the potential health hazards of the myriad of toxins in foods we eat, the water we drink and the products we use on a daily basis, I decided to take action and change my own lifestyle – so I ditched the diet soda, plastic water bottles, and a multitude of phthalate and paraben-filled personal care products lining my shelves (literally several large grocery bags full of them!) just to name a few changes.

At that point I began to dig even deeper and discovered the extensive library of research linking a vast array of negative health effects to repeated exposures to low-doses of the chemical toxins that are lurking in our everyday lives. As I learned more, I desperately wanted to share this information with as many people as I could. I had assumed that surely "if it was bad for us, the government would not allow it to be sold," and that there must be laws regulating what's in our products to keep us safe, but as I researched this, I was again shocked (and disappointed) to learn that the current laws, at least in the United States, are sadly outdated and ineffective. Up until 2016, the Toxic Substances Control Act of 1976 had never been amended even though it was so weak that it didn't require safety testing of a chemical prior to it being put on the market. But even with the 2016 amendment which thankfully requires that the EPA must make an affirmative finding on the safety of a new chemical or significant new use of an existing chemical before it is allowed into the marketplace, there are thousands of existing chemicals that have never been tested. And the existing federal cosmetics regulation – the Food, Drug and Cosmetics Act of 1938 – cedes decisions about ingredient safety to the cosmetics industry. Under the current law, the FDA doesn't have the power to require cosmetics companies to conduct safety assessments and can't even require product recalls. (The FDA didn't even have the authority under the law to issue a mandatory recall of Brazilian blowout hair straightening products after they were found to contain formaldehyde!)

I knew there were many great groups (Environmental Working Group and Campaign for Safe Cosmetics to name two) and many bloggers who were already sharing this important information, but I wanted to help spread it too – every single person empowered with this knowledge counts!

By way of background, I graduated from Princeton University in 2005 Summa Cum Laude with a Bachelor of Arts degree in Anthropology and then received my Juris Doctor degree from Stanford Law School in 2008. After practicing law full time for six years, I made the decision to follow my passion and began naturopathic medical school at Bastyr University California, where

I received my Doctor of Naturopathic Medicine degree and am now a California-licensed Naturopathic Doctor. The naturopathic medical philosophy perfectly suits my desire to help people attain optimal health and prevent disease through lifestyle management and evidence-based natural and conventional therapies as needed.

Wishing you the best of health!