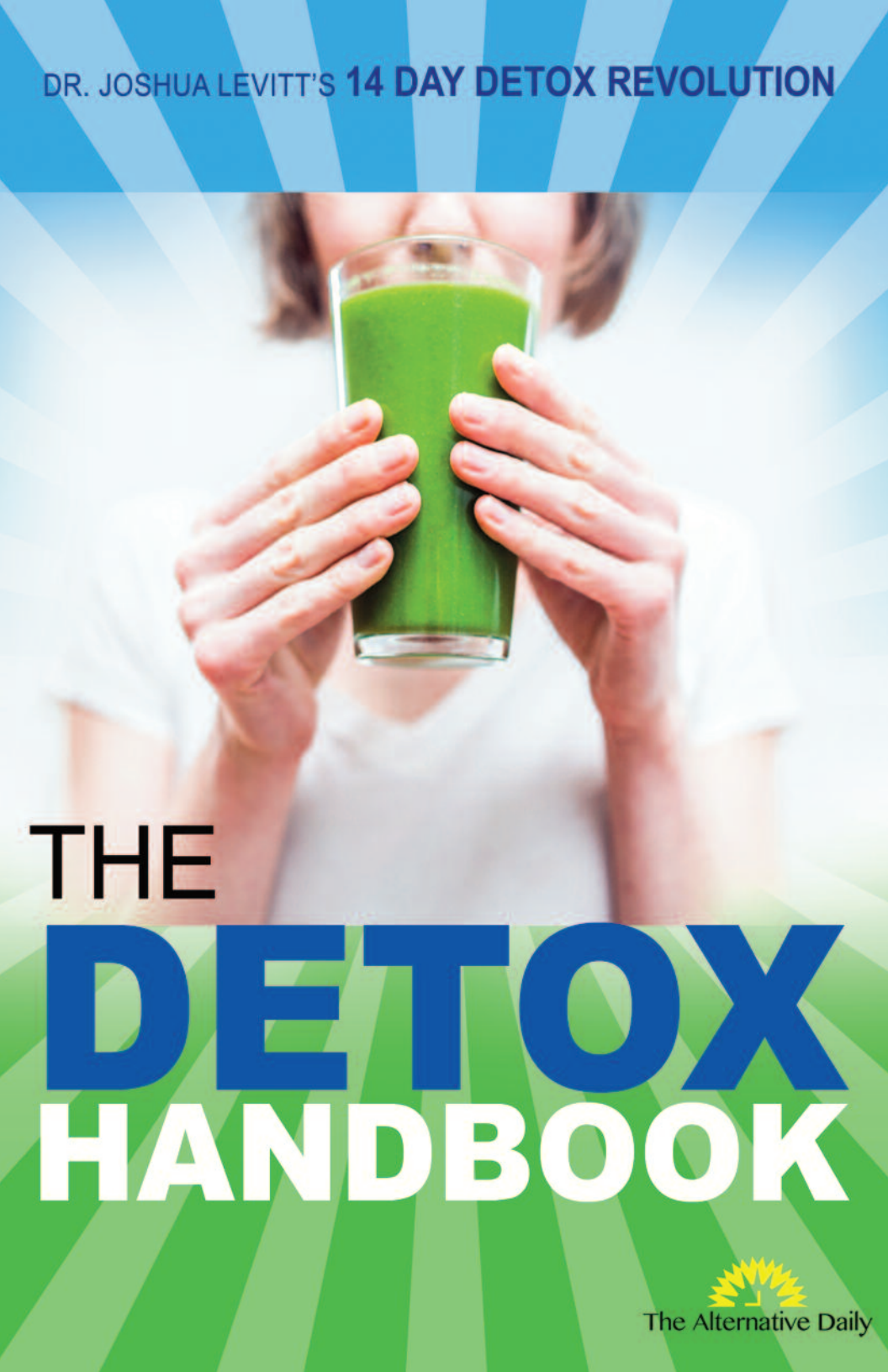


DR. JOSHUA LEVITT'S **14 DAY DETOX REVOLUTION**

A person with brown hair, wearing a white t-shirt, is holding a clear glass filled with a vibrant green smoothie or juice. They are holding the glass with both hands, and their face is partially visible at the top of the frame. The background consists of a blue and white sunburst pattern at the top, transitioning into a green and white sunburst pattern at the bottom.

THE **DETOX** HANDBOOK

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Introduction

The air quality in a coal mine is awful. It's loaded with toxic gases like carbon monoxide and methane... awful is an understatement, the air in a coal mine is downright dangerous. Early coal miners did not have the high-tech carbon monoxide detectors that are used today, making it difficult for them to know when these gases had reached dangerously high levels. For over 100 years, miners used canaries in mini bird cages as their personal carbon monoxide detectors. You see, these little yellow songbirds are very sensitive to carbon monoxide. When they are exposed to increasing levels of it, they will eventually stop singing, begin to sway on their perch, and eventually die. When a miner noticed that his canary was in trouble... he knew that it was time to get out, or he would be next.

The case of the canary in the coal mine tells a fascinating story. Sadly, it's not a story about canaries... or coal mines. It's about the toxins that we are all exposed to every day, and how these toxins can affect each of us in different ways. Some of us are more sensitive, like a canary who gets sick with even small amounts of exposure. Others are tougher, able to tolerate high levels of exposure without any serious consequences. We all know of somebody who smoked a pack a day for decades, and lived into their 90's right? Lucky for them... But there are countless others who are sick with illnesses that are known to be

associated with exposure to environmental toxins. Problems like difficulty losing weight, chronic fatigue, fibromyalgia, autoimmune disease, gastrointestinal problems, headaches, allergies, asthma, and many types of cancer.

I'm not a veterinarian but many of my patients are canaries... and I bet that sometime you feel like one too. We are all exposed to hundreds of toxins every day, and, just like the canary... some of us are more sensitive than others.

When you begin to understand what these toxins are, where they are lurking, and how your body eliminates them... you begin to take back control. You CAN limit your exposure to the things that make you sick. Limiting additional exposure is a crucial starting point. You can also learn how the detoxification machinery within your body works. Improving the function of that machinery is the next step down the road toward a cleaner, healthier body and mind.

This information presented here is your roadmap. Safe travels...

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Levitt', with a long horizontal flourish extending to the right.

Dr. Joshua Levitt

CHAPTER 1

The Health Threat Harboring in Almost Every Chemical ("Hormonal Havoc")

Americans are exposed to over 800 million pounds of pesticides per year not including the fungicides, larvacides, herbicides, and other chemicals used to grow our food. We are exposed to over 70 million pounds of chemicals per year *inside* our homes. The air we breathe outside is full of chemicals too numerous to count.

These effects on your health may not be instantly apparent, unless you have an immediate allergic response as more and more people are experiencing. Autoimmune disorders are certainly on the rise, and we can more than speculate that several decades of a constant chemical onslaught is the likely cause.

Unfortunately, more of us may be affected by the gradual eating away of our good health, starting with a minor annoying symptom that could very well develop into a life-threatening chronic disease. Most notably, various cancers have been on the rise. Certainly these too can be tied back to several decades of chemical exposure, as many scientific studies have now shown.

Once you realize the dangers and the frequency of

harmful chemical exposure, you'll understand the threat is very real and you must make changes in your life to avoid them. But for what you cannot avoid, detoxing is the answer to reclaiming your health.

Because so many of the toxins we are exposed to are bioaccumulative (that means once they enter your body, they accumulate in your tissues) detoxifying the body must be seriously considered if you intend to escape the very serious potential for chronic health problems you face daily.

The endocrine system regulates the release of certain hormones in the human body that control metabolism, development, growth, sleep, and mood and regulation of numerous other vital functions. Disruption of this majorly important system can wreak havoc on human health. Unfortunately, a great many of the chemical toxins you're being exposed to are doing just that, and belong to a large, wide-spread group known as endocrine disrupting chemicals (EDCs). Because they are so numerous and so dangerous, they warrant special attention.

EDCs are wreaking havoc on your health because there is almost no escaping them. They are literally everywhere, in almost everything you come in contact with every day. From the moment you begin your day with a lather-rinse-and-repeat in the shower, till you lay your head on your wrinkle-free pillow case at night you are being exposed to life-threatening, disease-inducing chemicals.

EDCs are found worldwide in insecticides, herbicides, fumigants, and fungicides that are used in agriculture as well as in the home. They are found in your cosmetics and personal care products. Other endocrine disruptors are found in industrial chemicals such as detergents, resins, plasticizers, and monomers in many plastics.

The chemicals can disrupt the endocrine system in several ways. They can mimic or block chemicals naturally found in the body that serve healthful purposes, alter hormonal levels, and thus, affect healthy functions that these hormones control. Less direct interferences involve alteration of the body's ability to produce hormones.

Many reports have shown associations between exposure to EDCs and health problems such as breast cancer, prostate cancer, thyroid cancer, attention deficit syndrome (ADD), and hyperactivity in children, sexual development problems such as feminizing of males or masculinizing effects on females and birth defects.

Adult bodies can sometimes compensate or recover from temporary hormonal modulation. However, hormonal effects in the fetus are much more profound. As cells begin to grow and differentiate, critical hormone balances occur. This is why a dose of EDCs may do substantial damage to a developing fetus.

It's important to know how you come into contact with EDCs so you can avoid them as much as possible. Unfortunately, these chemicals like to remain in the human body and simply avoiding them won't stop the damage they could be doing to your health at this very moment, but it is a start.

The Environment Working Group published a list of the worst hormone-disrupting chemicals you're likely come into contact with on a daily basis:

- 1. Bisphenol A (BPA)** is most commonly found in plastics like water bottles and thermal receipt paper commonly used at retail stores. It is known as a xenoestrogen because it imitates estrogen. BPA is also considered an *obesogen*—which is explained later in this chapter.



2. **Dioxin** is considered to be one of the most toxic chemicals known to science, the EPA states there does not appear to be a safe level of exposure to this known human carcinogen, which is a reportedly found in feminine products, among other common products.
3. **Atrazine** is one of the most widely used herbicides in the U.S. and is found in 94% of water tested by the USDA. Exposure to this EDC is linked to cancer, miscarriage, birth defects, delayed puberty, and reduced male fertility to name a few.
4. **Phthalates** are found in some soft toys, flooring, medical equipment, cosmetics, and air fresheners. Some research has implicated them in the rise of birth defects of the male reproductive system.
5. **Perchlorate** effects include altering hormone levels and decreased semen quality. For women, a late onset of puberty is attributed to this EDC.

6. **The heavy metals lead, mercury, cadmium, and arsenic** interfere with gonadotropin hormones and are considered antiandrogenic. They can cause reproductive malformations in men while exposure after birth and before puberty can delay sexual development.
7. **Perfluorinated chemicals (PFCs)** are obesogens and enter our bodies in great amounts through eating animals exposed to PFCs through water, soil, and dust that are commonly contaminated by PFC production.
8. **Organophosphate** pesticides and fire retardants—found in pesticides and some children's clothing, bedding, and furniture. The United States Environmental Protection Agency lists organophosphates as very highly acutely toxic to bees, wildlife, and humans. Recent studies suggest a possible link to adverse effects in the neurobehavioral development of fetuses and children, even at very low levels of exposure.
9. **Glycol ethers** are typically solvents found in pharmaceuticals, sunscreens, cosmetics, inks, dyes, and water based paints, while p-series glycol ethers are used in degreasers, cleaners, aerosol paints, and adhesives. Studies associate this EDC with low sperm count in men.

EDCs are Making Us Fat

Obesity, especially in the U.S. has been on the rise over the last decade—and with it diseases like diabetes and heart disease. One reason may be our exposure to endocrine disrupting chemicals known as obesogens.

A landmark 2002 study, published in the *Journal of Alternative and Complementary Medicine*, found the obesity epidemic paralleled the increase of industrial chemicals in the environment. And researchers are

gathering convincing evidence of chemical “obesogens”—dietary, pharmaceutical, and industrial compounds that may alter metabolic processes and predispose some people to gain weight.

Just like EDCs disrupt normal functions related to hormones, obesogens appear to disrupt the way fat cells store and release energy. Fat tissue also acts as an endocrine organ releasing hormones related to appetite and metabolism.

Exposure to obesogens during fetal development could predispose some people to obesity by promoting the development of fat cells and hampering with normal healthy hormone signaling.

In addition to the chemicals listed above there are other sources that may surprise you. For example, high fructose corn syrup is considered to be an obesogen because it acts on insulin and leptin in the body to increase appetite and fat production. Nicotene, also an obesogen, may contribute to childhood obesity if a mother smokes during pregnancy and indirectly causes problems that disrupt healthy metabolism development, and many pharmaceutical drugs are potential obesogens as well.

Because obesity (and its related complications) is a growing epidemic—and there is strong evidence that obesogens are contributing greatly to this public health danger—the next chapter focuses on this subject entirely.

CHAPTER 2

Obesogens: The Chemicals Making Us Fat—and Sick

Over the last decade Americans have been getting fatter. Fad diets and books on losing weight are selling at all-time highs. Documentaries abound on the dangers of fast foods and unhealthy eating. Overweight people have been shamed—even accused of being bad parents if their children are heavy.

But what if being fat is not our fault? It very well may not be.

Obesogens are chemicals that alter the way your body processes fat. And they are found everywhere—even in household dust!

Approximately 20 chemicals are considered obesogens, and unfortunately they are substances to which we are exposed to quite regularly. Chemicals found in plastics, like BPA, as well as in common pesticides are major contributors to obesogen over-load. Other sources include seafood, air fresheners, canned vegetables, cookware, flame retardant fabrics—even designer handbags!

Obesogens like to hang on once they're inside our bodies. DDT, the deadly pesticide banned in the 70s is an obesogen

and to this day still shows up in the urine of pregnant women in many parts of the country.

Dr. Bruce Blumberg, a professor of developmental and cell biology at the University of California, Irvine was one of the earlier researchers delving into the phenomena of obesogens. According to Dr. Blumberg, obesogens affect our bodies in several different ways that ultimately make it easier to put weight on and harder to take it off.

One way is by directly affecting adipocytes, or fat cells, by either increasing their fat-storage capacity or increasing their number. In addition, obesogens alter appetite and satiety, confusing the body into believing it is hungry or not getting full. These chemicals can even change our metabolism by reducing the number of calories burned at rest and promoting the storage of calories as fat.

In a recent study published in the journal, *Environmental Health Perspectives* in March 2013, it was found that obesogen-exposure caused mice to get fatter than their counterparts who had no exposure and who ate the same food and received the same level of activity in their environment.

So you can see how easy it is for obesogens to sabotage our efforts to lose weight or even maintain a healthy weight. But there is still something even more frightening about our exposure to obesogens.

The same study mentioned above showed that obesogen-exposure had an effect on multiple generations of mice. Specifically the study stated, “When we expose pregnant mice to low levels of tributyltin (a highly persistent organic pollutant considered to be an obesogen) in drinking water throughout pregnancy that the babies that were exposed in utero got fatter.”



But the damage didn't stop there. It turns out even two generations later obesogens were disrupting the endocrine system and metabolism of mice in the study. Dr. Blumberg himself believes this is a wake-up call for us, "We need to reconsider how we think about such chemicals. These [sic] chemicals and different exposure paradigms, say that there can be such a thing as trans-generational effects—

permanent effects that will affect our descendants."

Have we doomed ourselves and generations of our children to obesity and all the diseases that come with it? We've certainly come close. Newborns are bigger than ever and children are struggling with weight problems as young as toddlers. But now that we know the danger, it's time to do something about it.

At the very least—we must curb our exposure—and then begin to purge from our bodies what we have become exposed to up to this point. Earlier in this chapter is a list of potential sources of obesogen exposure, it is important to fully realize is that these harmful chemicals are so plentiful in the environment, your household dust will even test positive for them.

Start by avoiding plastics (BPA danger), filtering your drinking water, stop using pesticides outside, avoid nonstick cookware, stop eating microwave popcorn, and

mop often to remove that dangerous dust.

Taking steps towards clean living—which we will detail for you in further chapters—and adopting detox methods into your healthy lifestyle are not just necessary, but vital if you truly want to reverse the dangerous effects of obesogens.

CHAPTER 3

Toxic Food Dangers

No matter how healthy a lifestyle you try to lead, in today's world, toxic chemical exposure is unavoidable. Phthalates, hormone-disrupting chemicals, and hidden antibiotics are being discovered in surprising places. Many food additives once considered safe are now known to be damaging based on new scientific research.

The University of Texas Health Science Center at Houston (UT Health) found phthalates—industrial synthetic compounds used as plasticizers—in a wide array of common food items in the United States. Their study analyzed 72 popular food items from supermarkets in Albany, New York. Shockingly, there were phthalate levels detected in EVERY food item that was tested. Exposure to phthalates has been associated with reproductive and hormonal changes, as well as premature birth in infants and early puberty in adolescents. In an attempt to explain the findings, lead investigator Arnold Schecter, M.D., M.P.H., stated, “although it's not completely understood how phthalates get into our food, packaging may be a contributor to the levels of the toxin in food.”

Food can also serve as the mode of transportation by which environmental toxins, such as pesticides or fallout from factories, make their way from farms to your table

and into your body.

Many foods, especially processed foods are also ripe with chemical preservatives, additives, and antibiotics put there by the manufacturer or producer that have unintended harmful effects.

The food you eat can also, in itself, be the potential toxin, and many people believe that to be the case with genetically modified foods (GMOs).

In the following section you'll see just how many questionable and outright dangerous chemical pesticides, preservatives, and additives are in the food we eat, and how much more likely eating non-organically grown or raised food makes you vulnerable to these dangers.

Processed Food

Food processing is the transformation of raw ingredients into food, or of food into other forms. Food processing typically takes clean, harvested crops or butchered animal products and changes them in a way to produce desirable, marketable foods often with long shelf lives.

Industrial food processing began in the second half of the 20th century when the idea of food convenience became very appealing. The iconic TV dinner is the best example of early processed food.

With the advent



of processed food, what Americans gained in convenience, they lost in nutritional content. This was made worse by all of the additives and preservatives that are now known to have harmful effects on our health. The FDA maintains a list called EAFUS—Everything Added to Food in the United States. That list has more than 3,000 items on it! Luckily for us, most of the additives on the list appear to be benign. But here are a few you should definitely avoid:

Caramel Coloring: Found often in items like soft drinks, sauces, breads, and pastries, most often caramel coloring is derived from sugar in a process using ammonia. This causes it to put off the chemicals 2-methylimidazole and 4-methylimidazole. In 2011 the International Agency for Research on Cancer, a division of the World Health Organization, concluded that caramel coloring, when produced with ammonia, contains contaminants that are “possibly carcinogenic to humans.”

Yellow 5: Found often in gelatin desserts, candy, pet food, and baked goods, this is the second most widely used coloring. It causes allergy-like hypersensitivity reactions, primarily in aspirin-sensitive persons, and triggers hyperactivity in some children. It may also be contaminated with cancer-causing substances.

Yellow 6: Used in beverages, candy, and baked goods. This is the third most widely used dye. Industry-sponsored animal tests indicated that this dye causes tumors of the adrenal gland and kidney. Like Yellow 5, it may also be contaminated with cancer-causing chemicals. Yellow 6 may also cause sometimes-severe hypersensitivity reactions.

Blue 2: Found in pet food, beverages, and candy. Some animal studies found evidence that Blue 2 causes brain

cancer in male rats. Blue 2 and other artificial colorings are made from petroleum, much of it refined near China's Yellow River Delta, one of the world's most toxic polluted areas.

Saccharin is an artificial sweetener linked to bladder tumors in rats. In 1977, The FDA began requiring warning labels on foods containing saccharin, but in 2008 the FDA revoked its stance on this potentially dangerous additive.

Aspartame: Used in more than 6,000 products worldwide, aspartame is 200 times sweeter than sugar. Studies have suggested that it might cause cancer—especially with lifelong consumption—or neurological problems. Aspartame also irritates the lining of the bladder and may make the urinary tract more susceptible to infection.

Butylated hydroxyanisole (BHA): In studies, three different species of lab animals developed cancer from exposure to BHA, and the U.S. Department of Health and Human Services considers BHA “reasonably anticipated to be a human carcinogen.” BHA is found in products from butter to snack foods to animal feed and slows the deterioration of flavors and odors in foods and increases shelf life.

Brominated Vegetable Oil (BVO), used often in soft drinks is used to keep flavor oils in suspension. This additive will accumulate in body fat.

Propyl gallate: A preservative used in vegetable oil, mayonnaise, meat products, chicken soup base, and chewing gum. Propyl gallate slows the spoilage of fats and oils but can cause stomach or skin problems for asthmatics and aspirin-sensitive people. Studies on rats and mice suggest that this preservative might cause cancer.

Sodium nitrite and sodium nitrate: Preservatives, colorings and flavorings used in bacon, ham, hot dogs, cold

cuts, smoked fish, and corned beef. These chemicals give certain foods their characteristic flavor and color; they also prevent botulism, although critics argue that safer ingredients do the same thing. Several studies have linked consumption of cured meat and nitrite by children, pregnant women, and adults with various types of cancer.

Antibiotic Use in Food

According to the Center for Disease Control and Prevention (CDC), antimicrobial resistance is one of our most serious health threats. Infections from resistant bacteria are now too common, and some pathogens have even become resistant to multiple types or classes of antibiotics (antimicrobials used to treat bacterial infections). Antibiotic resistant infections can also come from the food we eat.

You may be ultra-careful about avoiding over-use of antibiotics yourself, but if you eat just about any meat raised and processed in the U.S. you are receiving a dose of antibiotics. Even scarier you may be exposed to resistant bacteria just by eating that very meat. Shockingly, over 80% of all antibiotics that are produced are used on livestock. If you want to stay healthy, one of your best defenses is to avoid the meat and dairy from these factory farmed animals.

Pesticide Use

Pesticides are substances meant for preventing, destroying, or abating any pest. Pesticides have been linked to a wide range of human health dangers including chronic illness, neurologic problems, birth defects, cancer, reproductive harm, and endocrine disruption.

Americans were first alerted to the dangers of pesticide



in the 1960s when the health and environmental effects of DDT began to surface. Despite that awareness, use of dangerous pesticides seems to have only increased and many scientific studies show compelling evidence of their far-ranging ill effects.

For example, in May 2010, scientists from the University of Montreal and Harvard University released a study that found that exposure to pesticide residues on vegetables and fruit may double a child's risk of attention deficit hyperactivity disorder (ADHD), a condition that can cause inattention, hyperactivity, and impulsivity in children.¹

Unless you buy your produce certified organic, it has been grown using pesticides. Washing your produce thoroughly does not fully protect you from pesticide residue, such as organophosphates, which have been linked to issues with child development.

Washing also does not protect you from ingesting pesticides, especially from certain fruits and vegetables known to be particularly "dirty." Dirty refers to the amount of pesticide the food absorbs during growth. Some foods absorb more pesticides than others and

The Environmental Working Group puts together a list of such foods so you can avoid them (see next section).

The GMO Controversy

The truth about GMO (genetically modified organism) food safety is that we just don't know. According to the FDA studies have not provided a "demonstration of reasonable certainty of harm." However, the agencies own scientists warned that GMO foods in general appear capable of unpredicted allergies, toxins, antibiotic resistant disease, and nutritional problems.

FDA appointees, including a former attorney for Monsanto—the largest producer of genetically engineered seeds—ignored these warnings.

And tragically, scientists who voiced their criticism or found incriminating evidence have been systematically silenced, threatened, stripped of their jobs and tenure, or denied funding for further research.

Some of the findings from various studies that Monsanto would like you to never know about have resulted in cancerous growths, damaged immune systems, atrophy of the liver, and impaired brain development and more in test animal subjects.

According to Jeffrey M. Smith, a renowned researcher on GMOs, GMO corn and most GMO crops are also inserted with antibiotic resistant genes. The American Medical Association, the World Health Organization (WHO), and organizations worldwide, have expressed concern about the possibility that these might transfer to pathogenic bacteria inside our gut. They are afraid that it might create new, antibiotic resistant super-diseases.

There's enough bad news about GMOs out there that

it makes sense to keep them off the dinner table. The only way you can be sure the foods you purchase are not GMOs is to buy certified-organic whole foods!

The Organic Argument

When you think of all the ways that toxins make their way into food, many consider eating organic to be the best option to avoid or lessen exposure. Organic foods are grown without synthetic pesticides and fertilizers. Organically-farmed animals are not given antibiotics and are fed organic food.

Unfortunately, if you think you can avoid everyday poisons completely by eating organic, think again. It was recently discovered that the USDA has been using two different antibiotics in organic apples and pears since 1990. Outrage concerning this discovery brought about a promise by the USDA that the use of these antibiotic treatments will be stopped by mid-2014.

Another additive present in organic foods that was once considered safe is carrageenan. Carrageenan is a natural binder and thickener derived from red algae and used in a huge variety of foods. These include low-fat items, dairy, and many health-food products such as flax and coconut milk. Physician Joanne Tobacman of the University of Illinois College of Medicine has spent the last 20 years researching carrageenan, and concludes that this substance causes inflammation and digestive issues, including inflammatory bowel conditions, and also speculates a connection between carrageenan and colon cancer in lab rats. She is currently involved in petitioning the USDA's Natural Organic Standards Board to have carrageenan banned from organic foods. To this day, her efforts have not been heeded by the USDA.

The scientific community is divided on whether organic food is nutritionally superior to conventionally grown food, but if your goal is to cut down on unnecessary exposure to chemicals, eating organic is definitely a good place to start.

Eating organic can be more expensive. The Environmental Working Group (EWG)² prepares an annual list of produce that tends to be the dirtiest as a result of pesticide load. At all cost, if you can't go completely organic, either eat these foods in their organic form exclusively—or avoid them all together—to reduce your toxin exposure by 80%:

1. Apples
2. Strawberries
3. Grapes
4. Celery
5. Peaches
6. Spinach
7. Sweet bell peppers
8. Nectarines
9. Cucumbers
10. Potatoes
11. Cherry tomatoes
12. Hot peppers

The EWG also puts together a Clean 15 list of foods that seem to contain the least pesticide contamination. These 15 fruits and vegetable are the



safest of the factory-farmed foods to consume:

1. Mushrooms
2. Sweet potatoes
3. Cantaloupe
4. Grapefruit
5. Kiwi
6. Eggplant
7. Asparagus
8. Mangoes
9. Papayas
10. Sweet peas—frozen
11. Cabbage
12. Avocados
13. Pineapple
14. Onions
15. Corn

CHAPTER 4

The Toxins Lurking on Tap

Fluoride and Chlorine

Many environmental groups are warning that the chemicals used to treat your drinking water are actually harming you.

The use of fluoride and chlorine in public water supplies has been debated for many years. And while most scientists claim both chemicals are safe as they exist in water supplies, in recent years studies have emerged that have linked these chemicals to very real health dangers.

A 2006 study published in *The Lancet* identified fluoride as “an emerging neurotoxic substance” that caused severe brain damage. Other studies have linked it to bone cancer, kidney damage, and disruption of the endocrine system.

Chlorine becomes harmful because of the way it interacts with organic matter to form trihalomethanes (THMs), also known as disinfectant byproducts. Chloroform is the most common THM and is a known carcinogen. Studies have linked chlorinated drinking water with such health dangers as increased risk of bladder, kidney, and rectal cancers. THMs from chemically treated water have been associated with birth defects and spontaneous abortion.

Surprisingly the bigger danger from chlorinated water may be from showering and bathing in it versus drinking it. That's because our body's natural detox system tries to purge most of the chlorine we consume by drinking, but chlorine vapors inhaled during a shower can enter the blood stream directly.

For these reasons, it's most important to filter the water in which you wash as well as the water you drink!

Heavy Metals

Mercury is a liquid metal that gets into the water from sources including natural deposits, refinery and factory discharge, and landfill runoff. Exposure to excessive amounts of mercury may potentially cause kidney damage when exposed to levels above the EPA maximum-contaminant level for extended periods of time.

Lead can come from corrosion of plumbing and pipes going into your home. It also can get into the water supply



through erosion of natural deposits. Exposure to lead has been linked to delays in physical or mental development in children. In adults, lead exposure may potentially cause kidney problems and high blood pressure when exposed to levels above the

EPA maximum-contaminant level for extended periods of time.

Quench Your Thirst with Pharmaceuticals and More

Your tap water is absolutely brimming with medicine. Surveys carried out between 2006 and 2007 of the drinking water of 28 million Americans detected the presence of pharmaceuticals and hormonally active chemicals.

Albeit in small amounts, the following compounds were commonly found:

1. **Atenolol**, a beta-blocker used to treat cardiovascular disease.
2. **Atrazine**, an organic herbicide banned in the European Union, but still used in the U.S., which has been implicated in the decline of fish stocks and in changes in animal behavior.
3. **Carbamazepine**, a mood-stabilizing drug used to treat bipolar disorder, and other disorders.
4. **Estrone**, an oestrogen hormone secreted by the ovaries and blamed for causing sex changes in fish.
5. **Gemfibrozil**, an anti-cholesterol drug.
6. **Meprobamate**, a tranquilizer widely used in psychiatric treatment.
7. **Naproxen**, a painkiller and anti-inflammatory linked to increases in asthma incidence.
8. **Phenytoin**, an anticonvulsant that has been used to treat epilepsy.
9. **Sulfamethoxazole**, an antibiotic used against the *Streptococcus* bacteria.

10. TCEP, a reducing agent used in molecular biology.

11. Trimethoprim, another antibiotic.

According to researchers, even trace amounts of these drugs carry potential risk to a developing human fetus and to those with compromised health.

CHAPTER 5

Toxic Teeth

If you have silver [mercury] amalgam fillings in your mouth you may be experiencing mercury absorption up to four times higher than from fish consumption!

Silver-mercury amalgam has been used as a filling material for 160 years. These fillings are made of powdered metals and metal compounds consisting of silver, copper, tin, and zinc are mixed with about an equal weight of liquid mercury. The entire time these fillings are in your mouth they are leaching mercury into your blood stream due to the close proximity of fillings to highly absorbent areas in your mouth—the underside of your tongue and the inside of your cheeks.

The World Health Organization (WHO) has stated that the exposure to mercury vapor can greatly increase due to personal habits such as grinding of the teeth, chewing gum, and drinking carbonated drinks.

In the United States the removal of these fillings has been hotly debated and studies have produced conflicting reports. In Sweden, however, studies found that 78% of people with pre-existing neurological and health issues (chronic fatigue-type symptoms) reported improvement in their health status after having these fillings removed.

Mercury is a dangerous neurotoxin that interferes

with the brain and nervous system. It is especially dangerous to an unborn child who can be adversely affected through the mother's exposure from her own fillings.

Symptoms of mercury poisoning have been reported to include:

- Mental disorders
- Migraines
- Arthritis
- Infertility
- Gastrointestinal problems
- Anxiety
- ADHD
- Asthma
- Allergies

Talk to your dentist about the possibility of replacing any mercury-laden fillings in your teeth with a safer, modern material.



CHAPTER 6

Toxic Dangers in Your Personal Care Products

Most of the personal care products we use on a daily basis are not as appealing as they are marketed to be. You may look and smell great after using them but beware of their toxic potential to cause health problems ranging from reproductive concerns to cancer.

Below is a Dirty Dozen³ list that will help you understand just what you're slathering on your body the next time you soap up, moisturize, or condition:

1. Butylated Compounds: BHA and BHT

BHA (butylated hydroxyanisole) and BHT (butylated hydroxytoluene) are used mainly in moisturizers and makeup as antioxidants and preservatives, and are often a hidden ingredient in some fragrances. BHA is toxic to the immune system and the International Agency for Research on Cancer classifies it as a possible human carcinogen. Studies⁴ have shown it causes damages at the cellular level, and its use in cosmetics has been banned in the European Union. Studies suggest that BHT may be toxic to the skin, lungs, liver, and immune system. Both chemicals can cause allergic reactions, are suspected of interfering with hormone function (endocrine disruption),

and may promote tumor growth.

2. Coal tar dyes

The U.S. National Cancer Institute and National Toxicology Program have found phenylenediamine, used in hair dyes, to be carcinogenic in laboratory tests. Other coal tar-derived colors are used extensively in cosmetics, identified by “FD&C” or “D&C” followed by a color name and number. Coal tar itself is recognized as a human carcinogen and the main concern with coal tar colors are their potential as carcinogens. As well, colors may be contaminated with low levels of heavy metals and some contain aluminum (a neurotoxin). This is especially concerning when used in cosmetics that may be ingested, like lipstick.

3. DEA

DEA (diethanolamine) and DEA compounds are used to make cosmetics creamy or help them lather. They irritate the skin and eyes and may be toxic to the immune and nervous systems. DEA compounds can also react with other ingredients in cosmetics to form carcinogenic nitrosamines.

4. Dibutyl Phthalate

Dibutyl phthalate are a frequent component of fragrances used in many cosmetics. Dibutyl phthalate is absorbed through the skin and has been found to be widespread in populations. It can enhance the capacity of other chemicals to cause genetic mutations, although it is not a mutagen itself. In laboratory experiments, it has been shown to interfere with hormone function (endocrine disruption) causing reproductive and developmental problems. Dibutyl phthalate is banned in cosmetics in the European Union.

5. Formaldehyde-releasing preservatives

Formaldehyde-releasing agents DMDM hydantoin, diazolidinyl urea, imidazolidinyl urea, methenamine, quarternium-15, and sodium hydroxymethylglycinate are used as preservatives in cosmetics. As mentioned previously, formaldehyde is a recognized human carcinogen. Formaldehyde and formaldehyde-releasing preservatives (FRPs) are found in nail polish, nail glue, eyelash glue, hair gel, hair-smoothing products, baby shampoo, body soap, and body wash.

6. Parabens

Parabens are widely used in cosmetics as a preservative. They easily penetrate the skin and are suspected of interfering with hormone function (endocrine disruption). There is some evidence that parabens mimic estrogen, the primary female sex hormone. Some studies suggest a possible association between parabens and breast cancer. Watch out for ingredients ending in “paraben” (e.g., methylparaben).

7. Parfum (a.k.a. fragrance)

Fragrance recipes are considered a trade secret, so companies are not required to disclose the chemicals used in the list of ingredients. Of the thousands of chemicals used in fragrances, most have not been tested for toxicity, alone or in combination. In laboratory experiments, individual fragrance ingredients have been associated with cancer and neurotoxicity.



8. PEG compounds

PEG (polyethylene glycol) compounds are widely used in cream bases in cosmetics. PEG (and its chemical cousin, propylene glycol) opens the skin's pores, allowing harmful ingredients to penetrate more deeply. PEG and other "ethoxylated" ingredients (which usually have chemical names including the letters "eth") may be contaminated with ethylene oxide and 1,4-dioxane. Both contaminants may cause cancer and ethylene oxide may harm the nervous system and interfere with human development. Also, it doesn't easily degrade and can remain in the environment long after it is rinsed down the shower drain, posing environmental hazards.

9. Petrolatum

Petrolatum (mineral oil jelly) is used as a barrier to lock moisture in the skin in a variety of moisturizers. It is also used in hair care products to make your hair shine. A petrochemical, it can be contaminated with cancer-causing polycyclic aromatic hydrocarbons (PAHs). The European Union considers petrolatum a carcinogen and restricts its use in cosmetics.

10. Siloxanes

Cyclomethicone and siloxanes are used in cosmetics to soften, smooth, and moisten. These compounds can irritate the skin, eyes, and lungs. They are also suspected of interfering with hormone function (endocrine disruption) and of liver toxicity. Also, these chemicals don't easily degrade and can remain in the environment long after they are rinsed down the shower drain, posing environmental hazards.

11. Sodium laureth sulfate

Sodium laureth sulfate is used in cosmetics as a cleansing agent and also to make products bubble and foam. This and other “ethoxylated” ingredients (which usually have chemical names including the letters “eth”) may be contaminated with ethylene oxide and 1,4-dioxane. Both contaminants may cause cancer. Also, ethylene oxide may harm the nervous system and interfere with human development. It doesn’t easily degrade and can remain in the environment long after it is rinsed down the shower drain.

12. Triclosan

Triclosan is a commonly-used antimicrobial agent that accumulates in the fatty tissues of our bodies. You’ll come into contact with it in cosmetics, antiperspirants/deodorants, cleansers, toothpastes, and hand sanitizers. There is evidence that triclosan is an endocrine disruptor and impacts thyroid function. Also, the extensive use of this chemical in consumer products contributes to antibiotic-resistant bacteria. Triclosan-resistant strains of microorganisms such as E-coli and Salmonella have already been identified.⁵ The Canadian Medical Association has called for a ban on antibacterial consumer products, such as those containing triclosan.

13. Hydroquinone

Considering many organizations believe this last chemical to be one of the most toxic ingredients used in personal care products, let’s consider this list a Baker’s Dirty Dozen. Hydroquinone is found in skin lighteners, facial cleansers and moisturizers, and nail glue. It was banned from cosmetics in the European Union and restricted in Canada. But the U.S. has not gotten on board. It is associated with cancer, organ-system toxicity,

allergies, and immunotoxicity.

Lead and other heavy metals, including arsenic, mercury, aluminum, zinc, chromium, and iron are also found in cosmetics. The biggest culprits for heavy metals are lipsticks, eyeliners, nail polishes, and whitening toothpastes.

Metals have various properties in the body and are needed for balanced health. Iron, for instance, is necessary for blood oxygenation. But at higher accumulations, metal may have the opposite effect. Cancerous breast biopsies show higher accumulations of iron, nickel, chromium, zinc, cadmium, mercury, and lead than non-cancerous biopsies, and several metals act like estrogen in the presence of some breast cancer cells.

Even though lead was banned for use in paint in the 1970s, its use is still rampant in the cosmetic industry.⁶

Other metals show a similar tendency to be toxic and pose very real danger to human health:

- There is strong hazard-based evidence that zinc is a human immune and respiratory toxicant. In addition, one or more animal studies show tumor production at low levels, and zinc is persistent and bioaccumulative, according to *Skin Deep*.
- Aluminum-based compounds vary in their toxicity, but some are linked to neurotoxicity, developmental reproductive toxicity, and cancer.
- Chromium is strongly linked to immune and respiratory toxicity, as well as systemic toxicity. Animal studies show tumor formation at low doses.

CHAPTER 7

Chemical Dangers in Your Home

Think about all the common household cleaners, dish and laundry detergents, fabric softeners and dryer sheets, personal care products, flea and tick drops or powders for your pets—even air fresheners—that are in your home right now. Then consider your garage or storage building and explore the dangers lurking there: Windshield wiper fluid, rat poison, fire ant killer, insect repellents, fertilizers, motor oil, and maybe a box of moth balls.

There's no doubt that chemicals in products, such as these, have made our lives easier. Self-scrubbing, extra-strength cleaners make it convenient for us to quickly take care of chores we hate while leaving more time for our already full and busy lives. Ant, rat, and roach poisons save us money on exterminators. Anti-frizz, anti-dandruff shampoos and conditioners helps us obtain exactly the hair we want in spite of what Mother Nature gave us, and body lotions, perfumes, deodorants, and antiperspirants keep us smelling like a breath of fresh air.

These chemical products are far from a breath of fresh air! Simply inhaling the fumes of these common household products, not to mention skin contact, can cause you

and your family harm.

The dangers to your health come not only from products you bring into your house, but also lurk in your home's construction. The very building materials your home and furniture are made from, including particle board, insulation, paneling, paint, treated wood, right down to the fibers in your carpeting, sofa, drapes, wrinkle-free bedding and believe it or not—your electronics and appliances—are posing serious danger to your health every day.

Toxic Dangers in Your Furniture and Home Construction

Formaldehyde and volatile organic compounds (VOCs) can make your home a double threat to your health.

Urea formaldehyde is the “glue” that holds together pressed wood and is commonly used in many products found throughout the home including paneling, cabinetry, furniture pieces, fiberboard, and insulation.

Formaldehyde exposure can be dangerous, causing watery, burning eyes and throat, difficulty breathing and asthma attacks. It has been found to cause cancer in lab animals. But most frightening is that four major watchdog organizations find formaldehyde poses a significant cancer danger to humans:

- The National Toxicology Program (NTP) and The International Agency for Research on Cancer (IARC) classify formaldehyde as a “human carcinogen.”
- The Environmental Protection Agency (EPA) classifies it as a “probable human carcinogen.”
- The National Cancer Institute reports it may cause leukemia in humans.

In smaller spaces, such as prefabricated or mobile homes, campers and trailers formaldehyde emissions exist at much higher and concentrated levels. The CDC and FEMA recognized the significant threat to human health after Hurricane Katrina and recommended the evacuation of hurricane victims from FEMA trailers.

The EPA recommends using "exterior-grade" pressed-wood products to limit formaldehyde exposure in the home. These products give off less formaldehyde because they contain phenol resins, not urea resins. Before buying pressed-wood products, including building materials, cabinetry, and furniture, buyers should ask about the formaldehyde content of these products.

You can reduce the formaldehyde levels in your home somewhat by not allowing smoking inside and by ensuring adequate ventilation, moderate temperatures, and reduced humidity levels through the use of air conditioners and dehumidifiers.

Volatile Organic Compounds

Volatile organic compounds (VOCs) are chemicals used in most products that can easily evaporate into the air we breathe and affect indoor air quality. The glues and dyes used in carpeting are known to emit VOCs, which can be harmful to one's health in high concentrations.

Scientists seem to agree VOCs can damage health but to what extent is debatable. Because VOCs are most concentrated in carpet during installation and subsides after a few days, you can minimize exposure by requesting a retailer to unroll your new carpet after purchase and air it out before installation. Or just forego carpet altogether.

Toxic Dangers in Your Carpets, Bedding, and Sofas

PBDEs are industrial toxic chemicals that have been used for more than 30 years as flame-retardants and have been linked to developmental problems, low sperm counts, and poor thyroid function in lab animals. Other animal studies have indicated PBDEs may be cancer-causing, though that has not been confirmed.

These chemicals are commonly found in furniture, cushions, mattresses, pillows, pet beds, carpet and padding, and television and computer casings and circuit boards.

PBDEs can be inhaled through air, dust, or by eating animal products that contain it. PBDEs show up in water supplies world-wide.

In humans, PBDEs collect in a female's womb and in breast milk, where they can be passed onto infants. The U.S. Centers for Disease Control and Prevention has performed extensive testing and report finding levels of PBDEs in greater than 60% of everyone tested.⁷



Toxic Dangers in Your Electronics

Many electronic devices contain mercury and lead, as well as brominated flame-retardants (PBDEs), which can accumulate in dust, build up in the human body, and have been associated with altered thyroid hormone levels, low fertility, and other concerning health issues.

Though much of the danger comes to us by way of improperly disposed electronic equipment, which leaches a dangerous chemical cocktail into soil and water supplies, a study from the Queensland University of Technology in Australia⁸ found that some laser printers give off fine particles of volatile organic compounds (VOCs) during use that could cause serious health problems.

Toxic Dangers in Your Laundry

When it comes to the chemicals found in laundry detergents, fabric softeners, and dryer sheets, your best bet would be to stop washing your dirty clothes and continue to wear them—stubborn stains and all. We realize that's not really possible so we'll give you some healthier options in a future chapter.

But understand the very attributes that are marketed to make these products most appealing—the “clean” fragrance, the whitening capability and the static-free softness—require some rather risky chemicals.

The active cleaning ingredient in most detergents is nonylphenol ethoxylate (NPE), a petrochemical that is a known endocrine disrupter. Our hormones regulate many of our bodily functions, such as reproduction, and anything that disturbs our hormonal balance can severely affect physical function and fetal development.

The clean fresh scent of your favorite brand of detergent

is most likely formaldehyde—a known carcinogen. And the phthalates used to help that scent last for days in your clothes and bed linens are known for adverse effects on reproductive health and a higher risk of liver cancer.



But when it comes to the mother-load of toxicity, dryer sheets really stand out. That's why we recommend you don't use them. Below is a list of five of the potentially harmful chemicals found in dryer sheets:

- **Alpha-Terpineol** has been linked to central nervous system disorders as well as headaches, respiratory depression, and loss of muscular coordination. The Material Safety Data Sheet lists this compound as being highly irritating to mucous membranes and state that inhaling it into the lungs can result in pneumonitis or even fatal edema.
- **Chloroform** is on the EPA's Hazardous Waste List and is carcinogenic as well as neurotoxic. It has been linked with kidney, liver, heart, and skin disorders. The inhalation of its vapors may cause headache, dizziness, sleepiness, nausea or vomiting, irritation of the respiratory tract, and even loss of consciousness. Inhalation can also be fatal. Over time, extensive liver and/or kidney damage can develop.
- **Pentane** can be harmful if inhaled, causing headaches, nausea or vomiting, dizziness, drowsiness, and even loss of consciousness. The repeated inhalation of the vapors

can cause nervous system depression while prolonged exposure to the skin can result in dermatitis.

- **Ethyl Acetate** is a narcotic on the EPA's Hazardous Waste list that can cause eye irritation and irritate the respiratory tract. It may also cause headache, narcosis and anemia with leukocytosis, liver and kidney damage.
- **Benzyl Acetate** has been linked to pancreatic cancer. Its vapors can cause irritation to eyes and respiratory passages. It can also be absorbed through the skin and cause systemic effects.

Toxic Dangers in Your Kitchen and Bath

Some of the most toxic threats in our homes lurk in kitchen cabinets and bathroom vanities. We've been programmed to believe these products are necessary to protect us from germs and bacteria in two rooms in every household that we just can get clean enough—the kitchen and bath. But the truth is we could be in more danger from sanitizers, disinfectants, degreasers, drain and oven cleaners, polishers, scrubs, toilet bowl cleaners, and bleaches than the germs and bacteria they are supposedly protecting us from.

Cleaning products vary in the degree of danger they present. Many cause immediate hazards as skin, respiratory and eye irritants, while others contribute to long-term health effects, such as cancer or hormone disruption, that can take years to present after initial or prolonged exposure.

Some all-purpose cleaners contain these harmful ingredients:

- Diethanolamine (DEA) and triethanolamine (TEA) act as sudsing agents. When these substances come into

contact with nitrites, that are often present as undisclosed preservatives, they react to form nitrosamines—a carcinogen that readily penetrates the skin. Numerous studies and databases link nitrosamines to cancer. They are listed as possible human carcinogens by the U.S. Environmental Protection Agency, the International Agency for Research on Cancer, the U.S. National Toxicology Program Report on Carcinogens and the California EPA Proposition 65 list of chemicals known to cause cancer or birth defects. There is also evidence of endocrine disruption. Nitrosamines are linked to developmental or reproductive toxicity, immunotoxicity, neurotoxicity, and systemic toxicity.

- Trichloroethylene (TCE) is a cancer-causing chemical—designated so by The International Agency for Research on Cancer—that acts as a solvent and degreaser in household cleaners like spot removers and rug cleaner. It is also found in paint removers, adhesives, and metal cleaners. TCE is associated with cancers of the liver, kidneys, and prostate, and non-Hodgkin’s lymphoma. Drinking or breathing TCE may cause harm to the nervous system, liver and lung damage, abnormal heartbeat, and at high levels, can even cause coma and death. Exposure during pregnancy has been associated with multiple types of birth defects and low birth weight.
- 1,4-dioxane, another suspected carcinogen, may be present in cleaners made with ethoxylated alcohols.
- Butyl cellosolve (also known as ethylene glycol monobutyl ether) may be neurotoxic (or cause damage to the brain and nervous system).
- “Hormone disruptors” are chemicals that can interfere with the body’s natural chemical messages, either by

blocking or mimicking the actions of hormones. The alkylphenol ethoxylates (APEs) used in some detergents and cleaners have been shown to mimic the hormone estrogen. APE, p-nonylphenol, has caused estrogen-sensitive breast cancer cells to multiply in a test tube study. Other possible health effects include decreased sperm counts, increased rates of male birth defects such as cryptorchidism (undescended testicles) and hypospadias (where the urethra is on the underside of the penis), and increased rates of some kinds of cancers.

You can cut down on exposure to these dangerous toxins by throwing out your store bought cleaners and opting for green cleaning. Lemon juice, vinegar, and baking soda make safe and effective natural cleaners, and when used together can scrub, clean, and disinfect just as well as commercial products without toxicity issues.

Additional Dangers in the Kitchen

Every time you enjoy the convenience of cooking in a non-stick skillet—the kind with the special no-stick coating like Teflon® products—you are exposed to perfluorooctanoic acid (PFOA).

PFOA is a chemical that is part of a family of hazardous chemicals called Perfluorinated compounds (PFCs). They can be found in cleaners, paints roof treatments, hard wood floors (as a protectant), and specially coated cookware.

Like many chemicals that enter our bodies, PFOAs are bioaccumulative. The half-life, or the time it would take to expel half of a dose of perfluorooctanoic acid from your body, is estimated at more than four years! You're practically eating PFOAs if you use specially coated cookware.

PFOAs are definitely not something you want to stick around in your body as they are associated with liver, pancreatic, testicular, and mammary gland tumors in laboratory animals.

The Plastic Threat

Bisphenol A (BPA) is likely another danger lurking in your kitchen. BPA is a common chemical found in plastics, food and beverage can linings, and other consumer products. You may recall the recent trend for BPA-free plastic baby bottles and water bottles in the last couple of years.

BPA is known to mimic estrogen and, in animal studies, has been linked to reproductive harm, increased cancer susceptibility, and abnormalities in brain development and fat metabolism.

Over 90% of Americans are walking around with BPA residues in their bodies. Exposure is such in our daily lives that we are taking in BPA as fast as our bodies can get rid of it. BPA has been measured in breast milk, amniotic fluid, and follicular fluid providing evidence of a frightening level of exposure in developing fetuses and infants.

BPA is linked to developmental and reproductive harm including:

- Earlier onset of puberty
- Increased susceptibility to breast and prostate cancer
- Changes in gender-specific behavior caused by altered brain development

BPA is also associated with:

- Miscarriage
- Erectile dysfunction
- Diabetes and heart disease

CHAPTER 8

Toxic Environmental Pollution

According to the Environmental Protection Agency (EPA) air pollution is a mixture of solid particles and gases in the air mostly from car emissions and chemicals from factories. The International Agency for Research on Cancer state that air pollution and particulate matter both cause cancer in humans.

Air pollution isn't just outside—the air inside buildings and your home—can also be polluted and affect your health. In fact, in 2008 indoor air pollution and urban air quality were listed as two of the World's Worst Toxic Pollution Problems.

Air pollution also finds its way into the earth. Acid rain is a scary term we are all too familiar with and is the means by which these hazardous chemicals also make their way into our yards, our gardens, and even the lakes and rivers we swim and fish in. This is how these pollutants can end up in the food and water you consume.

Currently there are 187 air pollutants the EPA considers hazardous to your health, and you come in contact with them every day in the following ways:

- Breathing contaminated air.

- Eating contaminated food products, such as fish from contaminated waters; meat, milk, or eggs from animals that fed on contaminated plants; and fruits and vegetables grown in contaminated soil on which air toxics have been deposited.
- Drinking water contaminated by toxic air pollutants.
- Ingesting contaminated soil. Young children are especially vulnerable because they often ingest soil from their hands or from objects they place in their mouths.
- Touching (making skin contact with) contaminated soil, dust, or water (for example, during recreational use of contaminated water bodies).

The Most Common Air Pollutants

The six most common air pollutants in the U.S. are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide.



Particulate matter may be the most dangerous to our health. It can be solid particles or liquid and mostly consists of heavy metals, like lead and mercury. When breathed in this matter can stick anywhere along your airway or get wedged into narrow passages in the lung. As a result they can cause lung disease, emphysema, and lung cancer.

Ground level ozone is created when chemicals react to each other, such as nitrogen (NO_x) and volatile organic compounds (VOCs). Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOCs. VOCs are rampant in materials inside your home and contribute greatly to indoor air pollution (see the chapter on chemical dangers in your home).

Nitrogen dioxide and sulfur dioxide are the primary causes of acid rain and how these pollutants can find their way into your food and your home. These gases interact to form fine sulfate and nitrate particles that can be transported long distances by winds and inhaled deep into people's lungs. Fine particles can also penetrate indoors.

Lead emissions in the air today are mostly from ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. Exposure to lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system. The major exposure pathways include ingestion of lead in drinking water and lead-contaminated food.

Carbon monoxide can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues.



Until major changes occur, we recommend you limit your exposure to outdoor air pollution as much as possible. We'll give you some tips to do just that in a following chapter.

CHAPTER 9

How to Rid Yourself of Toxins and Save Your Health

In today's toxic world, your body's internal system for detoxification is working overtime... all the time. This natural cleansing process (also known as detoxification) is necessary just to survive. All of us are exposed to toxic chemicals at unprecedented levels every day. The food industry is now contributing over 800 million pounds of pesticides per year into our food. That does not include the fungicides, larvacides, herbicides, and other chemicals they use to grow our food. We as individuals use over 70 million pounds of chemicals per year inside our homes.

The complex chemistry of detoxification within your body is designed to handle a small amount of toxins and is really quite efficient at neutralizing and removing them. There are five main body systems that are heavily involved in the natural detoxification process. The gastrointestinal system, especially the liver, gallbladder, and colon are critical components. Detox also occurs through the urinary tract by way of the kidneys and bladder. The circulatory and lymphatic system is an important part of your body's detox system as it mobilizes toxins to the bloodstream to leave the body as waste. The lungs and the respiratory tract assist with the detoxification of airborne

particles. And finally, the skin serves as both a barrier against topical exposures as well as a way to eliminate them. It should come as no surprise that as our toxic exposure increase, so do diseases (including cancers) of our detoxification systems. You can't help but believe this is due to the huge toxic load they are forced to carry.

The volume and variety of toxins that we are exposed to is increasing significantly every day. These synthetic chemicals are accumulating within our tissue and causing cellular damage and disease. We are being slowly poisoned by levels of chronic toxin exposure that our internal detoxification system was never designed to handle.

As we've seen on previous pages, everything from our food and water supply, the air we breathe, the products we put on our skin, our homes and products in our homes, lifestyle choices, and the amount of stress in our lives contribute every minute of every day to how many toxins are floating around in our bodies.

Since there is no way to avoid all of these toxic threats entirely, it is vital to your health to: #1—reduce exposure by actively seeking ways to decrease the presence of these toxins in your life. #2—maximize your ability get of rid of these toxins by learning how to help your body take full advantage of its natural detoxification systems.

Listen to Your Body— it's Begging to be Cleansed

Our bodies are made to naturally eliminate toxins, but when the insult becomes more than we can take, the toxins begin to build up inside. Eventually, we become overrun with toxins, which can lead to serious health complications. Detox programs can naturally help the body do its job and allows us to regain health.

Your body gives you warning signs that it's in trouble. Often, we ignore these warning signs, blowing them off as "normal." This is incredibly dangerous as it's not normal to have headaches constantly, or be tired all the time. These are serious "check engine" signals that something is not quite right inside your body and it needs you to listen.

Here are some of the most common signals your body is telling you that it needs a serious cleaning, otherwise known as a whole body detoxification:

1. You are fatigued and feel tired constantly

More and more people are complaining of feeling so run down and tired all the time. Could it have something to do with toxins inside the body? Absolutely! In particular, a build-up of heavy metal toxins can make you feel tired and leave your mind feeling foggy. Metal toxins like mercury, aluminum, arsenic, and lead can build up and accumulate in the soft tissues of your body. As with many toxins, it is difficult to know how much has built up over time and exactly what the damage has been done as a result. Toxicity builds up silently everywhere in your body; in your cells, tissues, blood, brain, and organs. Metal toxicity is especially dangerous because the damage can be irreversible and you may not have any other warning signs until it's too late. These toxic metals can cause or contribute to a long list of diseases including Alzheimer's disease, Parkinson's disease, and other brain and neurological disorders. This is why reducing your exposure and optimizing your internal detox system is so essential.

2. You are overweight

Let's face the facts; we as humans are heavier than we have ever been... ever! Not only have our lifestyles become sedentary our diets are full of processed foods loaded with



chemicals, sugar, and fat. Our food supply consists of processed and packaged food-like substances that only remotely resemble real food, the toxins in these products take up residence in our guts, colon, and cells; especially fat cells. When you overload your liver with fat soluble toxins, they circulate into the bloodstream and are ultimately stored in fat cells, including within the fatty tissue of your brain. Some fat soluble toxins

include heavy metals, pesticides, and dioxins. Have you ever tried to lose weight and hit a “plateau” or a point where you have more to lose but can’t seem to get it off? Stored toxins in your fat cells may be to blame. Clearing out those toxins can help to get rid of that stubborn fat.

3. You experience frequent headaches or migraines

Frequent headaches are not a “normal” function of the body and yet headaches are the number one pain problem in the United States. Toxic chemical exposures can cause or contribute to both migraine and tension-type headaches. If you get headaches frequently, chronic toxic exposures may be to blame.

4. You have cravings or are continually snacking

Americans are both overfed and starving at the same time. Our food is full of calories and chemicals but devoid of many important nutrients. It’s like “starving in the midst

of plenty.” This cycle of overfeeding but under-nutrition often leads to strong cravings for unhealthy food choices. Strong cravings for carbohydrates, sugar, fat, or salt are not normal healthy reactions. They are indications that your metabolism is out of balance. Cravings and constant snacking should get your attention and stimulate you to think about ramping up your detoxification system by optimizing your nutrition. A detox program can help to maximize your digestion, absorption, and elimination which can help decrease or eliminate unhealthy food cravings.

Other signs that your body may respond well to a detox program:

1. You have allergies, asthma, or chronic respiratory problems.
2. You have a chronic illness or an autoimmune disease.
3. You have a coated tongue, post nasal drip, congestion, or frequent throat clearing.
4. You have brain fog, mood swings, or memory trouble.
5. You have rashes and skin problems that just won't clear up.

Detoxification is not a fad and it's not a luxury that you should think about doing someday. It is a natural physiologic process that is doing critically important work for you 24/7! Assisting your internal detoxification system with a specialized program will help to decrease your toxic load and improve the way you look and feel.

Detoxing Myths

Cleansing and detoxification programs have been practiced for thousands of years. Programs for internal cleansing, fasting, and detoxification are described in

ancient religious texts including the Old and New Testaments, and the Koran. These programs are also a part of virtually every medical system including Chinese medicine and ancient Ayurvedic medicine. Many cultures throughout the world even use cleansing, fasting, or detoxification as a spiritual purification ritual.

There are some common misconceptions floating around about detoxification that need attention and some clearing up. And depending on what you've heard before, you may be a little intimidated or overwhelmed about how to begin.

Detoxification does not need to be complicated, painful, or intimidating. Some of the common myths about cleansing are discussed below:

1. You need to fast in order to detox

This could not be further from the truth. The detoxification system is like a waste management that relies on vitamins, minerals, antioxidants, and phytonutrients as a source of fuel. The process functions best with reduced toxic exposures, optimum nutrition, and adequate rest. There are detox programs out there that recommend long term fasting like "Master Cleanse" in which you consume only lemon juice, maple syrup, and cayenne pepper for 10 days. Programs like this are extreme, harsh, and unnecessary.

2. If you eat healthy you do not need to detox

Again... this is false. We are exposed to more and more chemicals every year. There are over 3,000 chemicals added to our food supply and over 10,000 chemical solvents like emulsifiers and preservatives used to process our food. Even if you eat healthy you are still exposed to toxins in your environment that are virtually impossible to control.

Eating healthy is ideal but your body still depends on its internal detoxification system every second of every day. If you can make the work of detoxification easier by limiting your exposures as much as possible and maximizing your nutrition you will keep your body absorbing all the good vitamins and minerals so that your body can be healthy and strong.

3. There is no real benefit to detoxing

Toxins accumulate in your body in the same way that the garbage (and recycling) accumulates in your cans. If you don't take out the garbage, you've got a mess on your hands. As a society, we are exposed to an enormous toxic burden every day. Many of us add to that burden by eating nutrient depleted foods. These toxins stay trapped in our bodies and are significant contributors to the obesity, cancer, heart disease, neurologic disease, and autoimmune disorders. This onslaught of chemical exposures needs to be addressed and it makes sense to pay attention to the signs that your body is giving you, and to regularly support your detoxification system with a program of diet and lifestyle changes. Regular detox is necessary and essential to your health.

4. Detox is expensive and should be done in a clinic

Most detox programs are affordable and you generally do not need to be supervised by a doctor to start one. If you have a serious health problem like diabetes or cancer or if you take daily prescription medication, you should always discuss any program you are considering with your healthcare professional. You should not detox if you are pregnant or nursing and is not recommended for children.

5. Detox is just for the liver and colon

Although your liver is critically involved in the detoxification process, it is not the only organ system involved. Detox programs will often focus on the use of foods and nutritional supplements that support liver function but the rest of the organs of detoxification also need to be considered. Your entire digestive system, your kidneys, your lungs, and your skin are also involved. Healthy cleansing removes toxins and impurities from your whole body restoring and rejuvenating your mind, body, and spirit.

Detoxifying your body is essential to the overall maintenance of your body for optimal long-term health. After detoxing you'll notice you feel lighter, more energetic, and clear minded. You may notice your eyes are brighter and your complexion is radiant. These are all amazing signs that your body is lightening its toxic load and healing itself from the inside out.

Over the following pages we'll discuss some of the common elements of safe, effective detox programs so that you can understand your options.

CHAPTER 10

Detox Methods

There are many methods to help improve your health with detoxification. Safe, effective detox programs will generally include a whole spectrum of dietary changes with foods to include and to avoid, exercise and physical activity, stress management techniques, herbal medicines, nutritional supplements, and a variety of lifestyle changes.

The first step before beginning any detox regimen is to take an inventory of the toxic load that you put into your body and make small steps to lighten that load. Decrease or eliminate alcohol, coffee, refined sugars and saturated fats. If you smoke, you should stop. Pay special attention to packaged and processed foods which add significant concentrations of sugar, high fructose corn syrup, unhealthy fats, artificial colors, flavors, and preservatives.

Generally, you will also want to focus improving your bowel regularity. This can often be accomplished easily by increasing your water and fiber intake. This is an important practice for daily general health and wellbeing, regardless of whether you are doing a detox program or not. Keeping your body well hydrated and consuming whole foods rich in fiber aids your body's natural detox systems in doing what they do best—eliminating toxic waste.

In addition to the fiber that is found in vegetables, fruits, nuts, and whole grains... ground flax, chia, and rice bran or psyllium powder are great additional sources of fiber. Don't forget about hydration! Drink several glasses of filtered warm water or tea throughout the day. Icy cold water can impair digestive efficiency in some people, while warm or room temperature is more stimulating to the bowel. Make sure to drink clean, filtered water... and stay away from plastic bottles!

Beyond making healthy dietary choices, there are several more aggressive ways to enhance and invigorate your detoxification machinery.

Liquid Only Diets

Using a liquid diet and avoiding all solid foods for a short period is the quickest way to remove unwanted toxins from your body. This method uses nutritious liquids to rapidly enhance your nutritional status and stimulate your detoxification systems. When we avoid solid foods, the energy normally used for digestion can be diverted to encourage more intensive detoxification. This can have an impressive effect on toxin mobilization and fat loss in a very short time period.

There are several things to consider before initiating a liquid only detox:

1. It is important to ease into it, especially if you are a beginner. You'll want to make some basic dietary



improvements for at least a few days prior to doing a liquid only diet. Don't stop eating solids and immediately convert to a liquid diet. Transition to light, mild foods for at least a day or two in advance. Consider soup, rice, steamed vegetables, or toast. Drink lots of liquids such as diluted fruit juice, vegetable broth, smoothies, water, and herbal tea.

2. Liquid only diets work best when done for two or three days. Drink fresh fruit and vegetable juice, smoothies, vegetable broth or light soups, nut or seed milks, filtered water, and herbal tea.
3. Walk. Walking is the ideal physical activity. It will help improve circulation and stimulate digestion. Your daily caloric intake is likely to be significantly lower than usual so keep it easy and avoid strenuous physical activity.
4. Clear your schedule: Plan your two to three day liquid only diet during a time when you don't have any major events or social engagements. Your focus should be on yourself and your goals for improved health and vitality.
5. It's important to re-enter slowly. On the first day after your liquid only diet, have light vegetable soups and fruit purees. On the next day add whole grains and lean protein. By day three you can begin consuming your normal diet.

Lemon Juice to Start the Day

The health promoting benefits of lemons are widely known. For centuries, it has been known that lemons contain powerful antibacterial, antiviral, and immune boosting components. They are also a great digestive aid and liver cleanser.

Lemon juice in water can be an excellent way to start

your day. It is a digestive stimulant and seems to have beneficial effects on liver and gallbladder function.

Squeeze 1/2 of a lemon into each glass of warm water. Drink an 8 oz. glass each morning.

Fruit and Vegetable Juicing

Store bought juices often contain too much sugar and even preservatives—some of the very compounds you are trying to avoid. Making your own juice from fresh fruits and vegetables is recommended to achieve best results during your fast.

To make fresh homemade fruit or vegetable juice, you need a juice extractor or at least a really good blender. If you use a blender you may need to strain the juice from the pulp.

Some of the best fruits and vegetables for juicing include:

- Celery
- Kale
- Cabbage
- Cilantro
- Apple
- Cucumber
- Spinach
- Beets
- Leafy greens
- Carrots
- Kelp
- Nori

These foods provide detox support and many especially the green leafy vegetables support deeper toxin removal.

Why it's Important to Clean the Liver

Your liver is a major part of your body's natural detoxification system. It processes all that you eat, drink, and absorb through the skin, and as a result, it is one of the most heavily exposed organs in your body. It is therefore one of the important targets for detoxification.

For that reason, the liver deserves some special attention. Consider the following suggestions for targeted liver support.

Liver Foods: There are a wide variety of foods that are commonly used by nutritionists to support healthy liver function. To be kind to your liver, focus on including the following food:

Beets, artichokes, carrots, onions, garlic, leeks, shallots, mustard greens, beet greens, collards, kale, chard, sprouts, romaine lettuce, sea vegetables, radishes, turnips, figs, lemons, limes, grapefruit, apples, bananas.

Liver Herbs: Many herbal medicines have been known for their detoxing properties and can be made in to tea or added to juices to help improve the health of your liver and the rest of your detoxification systems:

- **Milk thistle:** is useful as a detoxifier for such things as radiation, toxic chemicals, and heavy metals.
- **Burdock:** a root vegetable commonly found in vegetable sushi rolls where it is usually called “Gobo.” Burdock root can be cooked and eaten or made into a



cleansing detox tea.

- **Parsley:** is often used for detoxification as it has a cleansing effect on the liver and kidneys. Because parsley is a natural diuretic, it increases urine output and the rate at which germs and toxins are flushed out of the body.
- **Dandelion root:** and the leaves may support healthy digestion and cleanse the gallbladder and liver of harmful toxins. The laxative and diuretic capabilities may clean out excess fluid from the body while cleansing the colon.
- **Fenugreek:** helps improve the quality of bile which is manufactured by the liver.
- **Turmeric:** a tasty Indian curry spice but also a powerful tool against inflammation and helpful in the detoxification process.

Detoxing Teas

Herbal teas are a powerful ally for detoxification. These teas contain minerals and phytonutrients that provide the fuel for the chemistry of the detox process.

Ginger is considered one of the best detoxifying herbs, frequently recommended in cleansing programs and detox diets. It is thought to cleanse the body by stimulating digestion, circulation, and sweating. Its digestive actions may serve to cleanse the build-up of waste and toxins in the colon, liver and other organs.

One of the best ways to enjoy ginger's health benefits is through a ginger tea. Prepare the tea by steeping about five slices of ginger (two teaspoons of fresh grated ginger) in hot water.



Rose hip tea is a tea that is used for calming frayed nerves and producing a sense of peace. It is high in antioxidants, such as vitamins D, C, E, and K. It has a gentle floral flavor and can reduce feelings of anxiety and depression. It has also been shown to improve fatigue and feelings of relaxation.

There are numerous health benefits to rose hip tea. In addition to being high in antioxidants, it is an effective tea to drink for body toxicity issues. It has also been shown to be an immune system booster and can help with the discomfort of cold symptoms, such as a sore throat or runny nose.

Green tea is well-known for helping with gut health and has been used for digestive balance for thousands of years in China and India. Green tea has been shown to improve insulin sensitivity and glucose tolerance. Additionally, it helps the body convert stored fats into energy, assisting with weight loss.

Detox Soups

Soups are a helpful way to include detox friendly foods into your diet. The following soup recipes provide just the right combination of fresh foods, herbs, and spices to encourage detoxification, while providing the body with vital nutrients. The soups would make a great part of a healthy eating regimen or to include in your detox program.

Chilled Mint Cucumber Soup

Ingredients:

- 3 organic cucumbers, peeled and seeded
- 1 organic lemon, peeled
- 1/4 cup pine nuts
- 4 cups filtered water
- 1/4 cup fresh mint leaves
- 1 teaspoon sea salt
- 2 tablespoons olive oil

Instructions:

1. Place everything but mint in a blender. Blend for 3 minutes.
2. Add mint, then blend for 15 seconds.
3. Pour into a container and chill for several hours. Serve while cold.

Veggie Bean Soup

Ingredients:

- 1 organic leek, cut into small pieces
- 3 cloves garlic, crushed
- 3 cups organic baby carrots
- 4 organic celery stalks, sliced
- 3 small organic turnips, sliced
- 7 cups organic veggie broth
- 1/2 cup diced organic onion
- 1 can organic diced tomatoes
- 1 organic tomato, chopped
- 1 cup white beans
- 1 cup pinto beans

- 2 bunches organic kale, thinly sliced
- Sea salt and pepper to taste

Instructions:

1. Heat a large pot on the stove. Turn the heat on medium and add leek, onion, and garlic. Cook, stirring occasionally, for 5 minutes.
2. Add carrots, celery, and turnips. Cook for 5 more minutes.
3. Add all remaining ingredients except kale and seasoning. Simmer on low for 1 hour.
4. Transfer soup to a crock pot and cook on low for 8 hours.
5. About 20 minutes before serving, stir in the kale and season with salt and pepper.

Carrot Ginger Soup**Ingredients:**

- 1 organic onion, sliced
- 1 inch ginger, peeled and sliced
- 1 tablespoon coconut oil
- 2 pounds organic carrots, peeled and chopped
- 1 teaspoon cumin
- 1 quart organic veggie stock
- Sea salt and pepper to taste

Instructions:

1. Sauté the onion and ginger in the oil in a medium saucepan until soft.
2. Add the carrot slices and cook for 5 minutes.
3. Add remaining ingredients and simmer for 45 minutes.

4. Puree the soup in a blender then season to taste and serve warm.

Apple Carrot Soup

Ingredients:

- 4 cups filtered water
- 2 organic apples, peeled and cubed
- 12 sliced organic baby carrots
- 4 fresh basil leaves
- 2 inch piece of ginger, peeled and sliced
- Pinch of allspice
- 2 tablespoons lemon juice
- 2 tablespoons raw honey

Instructions:

1. Bring water to a boil in a saucepan.
2. Add carrots, apple, ginger, allspice, and basil to the pan. Cook For 15 minutes.
3. Drizzle the honey into the soup. Remove from heat and mix with a hand mixer. Serve while warm or chill first.

Green Detox Soup

Ingredients:

- Half an organic avocado
- Juice of half an organic lemon
- 1 tablespoon apple cider vinegar
- 1-2 teaspoons raw honey
- 1 clove garlic
- 1/3 cup organic broccoli florets
- 1/3 cup chopped organic carrots

- 1/4 cup chopped organic onion
- 1/2 tablespoon tamari
- 1 packed cup organic kale
- 1 pinch sea salt
- 1/4-1/2 cup filtered water (start with 1/4 cup and add as needed)

Instructions:

1. Place all ingredients in a blender and blend until smooth.
2. Chill for several hours before serving.

Water

Drink plenty of water during any detox program. Water is the ultimate liquid and drinking water—especially warm water—encourages the elimination of the toxins that are being purged from your body.

CHAPTER 11

Remove Toxins—Remove Fat and Vice Versa

Body fat is like a magnet for environmental toxins. It is well understood that as environmental exposure increases, fat cells serve as a storage depot for toxins. Therefore, decreasing body fat is a key component to reducing the threat that toxins pose to your health. In order to eliminate the fat or the toxins, you need to focus on eliminating both.

Storing toxins inside fat cells is the body's first attempt at protecting you from the onslaught of toxins you are exposed to every day. That's why toxins accumulate in body fat. It's an effective strategy, but unfortunately the modern body is exposed to far more toxicity than it was designed to handle. These toxins accumulate in fat cells and are stored there for extended periods of time. Years or even decades of accumulated toxicity can make it very difficult to lose the fat.

Additionally, there are certain specific toxins that contribute directly to obesity. Exposure to these "obesogens" can make it extremely difficult to lose weight. Chemical obesogens are dietary, pharmaceutical, and industrial compounds that alter metabolic processes and predispose to weight gain.

Just like endocrine disrupting chemicals disrupt normal functions related to hormones, obesogens appear to disrupt the way fat cells store and release energy.

All of this has a lot to do with why some people seem to hit a plateau while trying to lose weight. They are successful at first, but then, no matter how hard they exercise or diet, the weight just won't come off. When the fat that you are trying to lose is brimming with accumulated toxins, your body will resist getting rid of that fat because of the flood of toxin exposure that will likely occur. It has been shown that rapid weight loss can increase levels of organochlorine pesticides and PCB's in the blood by up to 300%. This phenomenon explains why some people have such trouble losing weight

Visceral fat, the fat that accumulates around your mid-section is the most dangerous toxic fat. It is internal fat that surrounds your heart, liver, kidney, and pancreas and is linked to insulin resistance, diabetes, and heart disease—all the conditions associated with metabolic syndrome.

The best way to eliminate this deadly fat and the toxins it contains is to reduce your exposure and follow the dietary and lifestyle guidelines in a detoxification program. Eating a nutrient dense, whole food diet that is free of processed food and all of those toxic additives is paramount. And of course, daily physical activity is mandatory to increase your basal metabolic rate which will help you burn the fat and expel the toxins.

CHAPTER 12

Exercise to Remove Toxins

Physical activity is a critical component of an effective detoxification protocol, and of course has many added benefits including maintaining cardiovascular health, stress reduction and keeping the body fit.

The human body is built to move. When the body is inactive, its internal systems tend to become inactive as well. This includes the circulatory and lymphatic systems, both of which play a significant role in natural detoxification processes. The lymphatic system requires movement to facilitate lymph flow, because it doesn't have an organ like the heart to pump it. Exercise also encourages improved oxygen delivery and aids the elimination of toxins through the lungs.

The detoxing benefits of exercise are two-fold:

1. Exercise helps improve metabolic rate which is necessary for fat loss. Because so many metabolic toxins are stored in fat, burning fat at a reasonable rate will help to reduce the overall toxic load.
2. Exercise increases circulation which helps encourage the body's natural elimination functions to rid the body of toxins.

As the body is conditioned with regular physical

activity, many body systems contribute to the improvements that exercise is well known to promote. Metabolic rate will increase, fat burns, and the lymphatic system (your body's drainage system) becomes more active. With regular exercise, immune system activity increases, gastrointestinal function improves, and the chemistry of the cellular detoxification process gets a boost.

Another important detox promoting effect of regular exercise is that it encourages sweating. The primary function of sweat is to help keep you cool as body temperature increases, but new research demonstrates that sweating can help to eliminate certain toxins as well. Research has demonstrated that arsenic, cadmium, lead, mercury, as well as Bisphenol A (BPA) and chemicals in plastic are excreted in sweat. Regular exercise and/or sauna therapy can be very useful tools in the battle against toxic overload.

So now that you know exercise will help you detox dangerous toxins from your body and limit the fat they hide in, you may be wondering what the best exercises are for this purpose. Low-intensity aerobic exercises are great because they get the heart pumping, the lungs expanding, and speed metabolism. But here are a couple that go the extra mile to help remove toxins from your body:

1. Jumping on a trampoline or mini-trampoline is a



great exercise for stimulating the lymphatic system to kick it up and purge toxins. The up and down motion of jumping creates a gentle pumping action that stimulates lymphatic circulation and helps to squeeze toxins out of the cells.

2. Yoga is a popular form of physical activity that improves muscle flexibility and tone and can significantly improve circulation.
3. To maximize fat loss, it's important to pick up the pace! Consider adding some high-intensity intervals into your regular physical activity. Short bursts of more intense activity will help to keep the fat burning switch on for a longer period of time after you finished exercising. This increase in metabolic rate helps rid the body of toxins more efficiently.

Be mindful of where you exercise to avoid breathing in toxins as you are sweating them out. When the air is bad, walk indoors in a shopping mall or gym or use an exercise machine. Always avoid exercising near high-traffic areas.



CHAPTER 13

Sweating Away Toxins

Saunas have long been known for their health benefits, including improving circulation, detoxifying the body, and decreasing stress. A sauna's dry heat has profound effects on the body, causing the temperature of the skin to soar to about 104 degrees in just a few minutes. The pulse rate of the average person increases by 30% or slightly more, allowing the heart to pump double the amount of blood it normally does every minute. Most of this extra blood flood is directed to the skin.

The sweat that is released helps to eliminate toxins from the body that come from the thousands of chemicals found in our environment that make their way into the air we breathe, the food we eat, and the water we drink.

No matter how strict your diet or pure your lifestyle, there are still hundreds, or even thousands, of chemicals that make their way into your body; one of the ways to eliminate them is through sweating. Sweating enhances elimination, which is why you may have smelled alcohol on a heavy drinker even if they hadn't been drinking that day—the toxic byproducts of last night's cocktails are literally pouring out of their skin.

The skin, sometimes known as the “third kidney,” is an amazing organ that can aid tremendously in the process

of detoxification if we just expose it to the right atmosphere. Many people don't sweat enough, so regular use of a sauna can help to restore skin elimination and allow toxic chemicals to be removed.

According to a 2011 study⁹ published in the *Archives of Environmental and Contamination Toxicology*, many toxic elements appeared to be preferentially excreted through sweat.

Additionally, a 2012 study¹⁰ published in the *Journal of Public Environmental Health* revealed that arsenic and cadmium were more concentrated in sweat than in urinary excretion or blood plasma. The same report even noted a case report where mercury levels were normalized with repeated saunas.

Perhaps the best news of all comes from another study¹¹ that found that sweating enhances the elimination of endocrine-disrupting petrochemicals—specifically BPA and phthalates. These are the particularly persistent nasty chemicals that wreak havoc on your endocrine system and tend to remain stored in the body for years.



How to Detox in a Sauna

The best temperature for detoxification is between 110 and 120 degrees F. This will allow most people to stay in the sauna for about 45 minutes. Sweating is slow and steady at this temperature, and you will not get overheated. Relax in the sauna, focusing on

your breathing and visualize the body dumping all of its toxins. Sauna therapy is ideally done three to five times per week.

Adding Herbs

Consider adding some herbs such as lavender or eucalyptus to your sauna. Lavender will help reduce stress and high blood pressure, while eucalyptus is great for clearing sinuses and reducing chest congestion if you have a cold.

Warning

If you are pregnant or have a heart condition, it is best not to use a sauna for detoxification. Exercise is a great alternative and will also boost immune function, enhance sweating, increase circulation, and elevate your mood.

CHAPTER 14

Detoxing Through Dry Brushing

Dry brushing is a traditional detoxifying practice of Ayurvedic medicine. Your skin is your body's largest detox system, and dry brushing stimulates the skin and lymphatic system to enhance blood circulation and release accumulated toxins.

Dry brushing can also help to keep your sweat glands working efficiently. Inactive sweat glands are at risk for getting obstructed. Malfunctioning or obstructed sweat glands can cause blockages in the lymphatic system, which can lead to an unhealthy buildup of lymph (bodily fluid responsible for collecting and transporting waste products to the organs of detoxification for elimination) which can cause swelling in the limbs and joints. It also adds unnecessary stress to the body's other detoxifying organs and systems, forcing them work harder.

If you are feeling sluggish and stressed, and especially if you feel like you are retaining water... try dry brushing once or twice per week before showering.

To get started you'll need a body brush with soft but firm bristles. There are even gloves made of fabric that are made for dry skin brushing. Make sure to always use products made from natural materials, such as cotton or silk.

The key to effective dry brushing is to begin at the extremities and brush towards the center of the body. You are moving lymphatic fluid (and the toxins it carries) to the body's core so that the detox systems can process and eliminate them.

Start at your feet and brush upward to the thighs, brushing legs, front and back.

This brings you to your belly where you brush in a circular motion toward the heart. Do the same on your back.

Now you are ready to brush your arms, using long sweeping strokes. Don't forget your arm pit area. This area is brimming with lymph nodes.

You can also lightly brush your face and neck, using downward strokes towards your body's core.

Remember to brush firmly enough to stimulate, but not to hurt. You don't want scratches on your skin. It should be an invigorating, not painful experience.

CHAPTER 15

Chelation to Remove Heavy Metals

EDTA Chelation Therapy

Chelation therapy is a medical procedure in which a chemical substance is used to bind molecules such as heavy metals or minerals, and hold them tightly so that they can be excreted. Chelation therapy is a controversial treatment for cardiovascular disease. It is clear that chelation can help to remove toxic metals, but it is still debated as to whether this is useful for treatment or prevention of cardiovascular disease.

Chelation therapy has a long history of use. It was famously used by the US Navy after World War II, to treat a large number of navy personnel who suffered from lead poisoning as a result of their jobs repainting the hulls of ships. Those navy painters were treated with Ethylenediaminetetraacetic acid (EDTA) which is a synthetic amino acid that is useful because of its ability to bind to the metal molecules and form a complex. This complex can then be safely excreted as waste.

EDTA chelation therapy is used as a treatment for toxic exposure to mercury, cadmium, arsenic, lead, uranium, plutonium, and other forms of toxic metal poisoning. The chelating agent may be administered intravenously or orally.

Food-based Chelating Agents

Modified Citrus Pectin

Modified citrus pectin (MCP) is a safe and effective food-based chelating agent. Research has demonstrated that people who take MCP excrete increased concentrations of a variety of toxic compounds into the urine.

Pectin is a naturally occurring substance found in the cell walls of most plants and especially concentrated in the peel and pulp of citrus fruits (lemons, limes, oranges, and grapefruits), plums, and apples. Pectin itself is a type of fiber that is not absorbed by the digestive tract. In order for pectin to be absorbed into the bloodstream, the chemical structure of the compound must be modified. This altered version of natural pectin is now known as MCP. MCP is readily absorbed into the bloodstream where it can be useful as a safe and effective chelating agent.

A study¹² performed in China proved it to be a safe method for lowering lead toxicity in children and it was actually used as a treatment for victims exposed to radiation at

Chernobyl. There have also been studies that showed MCP may be effective against preventing the spread or metastasis of certain cancers.

MCP is also commonly combined with seaweed derived compounds called “alginates.” These alginates appear to prevent the absorption of toxins from within the digestive tract.



This combination can be found in supplement form.

Cilantro

Cilantro is touted as an extremely effective herbal chelating agent. Interestingly, agricultural studies have shown that cilantro can be used to remove lead and other toxic compounds from contaminated water. It is this “biosorbant” action that makes this tasty herb a useful natural cleansing agent.

Chlorella

Chlorella is a nutrient-rich freshwater algae. Used alone, it has significant chelating properties, but it has been suggested that when combined with cilantro those properties are enhanced.

CHAPTER 16

Miscellaneous Toxin Removers

Daily Detox Foods¹³

Ginger

This pungent addition to many Asian-inspired meals packs a lot more punch than just flavor. Ginger is traditionally used as a cleansing agent for the bowels, kidneys, and skin. This great-tasting herb is famous for its amazing anti-nausea and digestive benefits. Grate it into soups, stir-fries, and marinades for a powerful health boost.

Basil

One of the most popular herbs for the home cook, basil has many more uses than merely adding a pop to pesto. This flavorful herb has been used traditionally as a powerful antioxidant, digestive tonic, and detoxifier. Basil is key for detoxifying and toning the kidneys, and its strong taste promotes the production of saliva, letting the body digest food properly. Along with the aforementioned pesto, add basil to pizza, sauces, or chop finely and toss with warm pasta and olive oil.

Hemp

Hemp has been called “nature’s most perfect food.” The nutty-tasting seeds are high in protein, natural antioxidants such as vitamin E, C, and chlorophyll. Hemp contains both soluble and insoluble fiber for deep-cleansing with immediate benefits. Top cereal and salads with hemp seeds, mix into yogurt, or add to baked goods. Blend about 2 tablespoons of hemp seeds, with 2 cups of water, 2 pitted dates, and a splash of vanilla extract for a tasty homemade seed milk.

Lemon Peel

Many people drink lemon water to cleanse, but the real detox power of the lemon lies in the peel. It supports the liver and encourages the release of gastric juices to improve digestion. Add lemon zest to pasta, salad dressing, or even muffins and cookies to get the added benefits of this much-loved citrus fruit. Make sure you use only organic lemons for zesting.

Turmeric

Turmeric is an Indian spice that is one of the most well studied herbs in the world. The dried root yields a bright yellow powder that is a powerful anti-inflammatory agent. It also has anti-cancer properties, making it one of the most widely used herbs is a whole body cleanser, making it particularly beneficial. Typically used in curries, you can also put turmeric in just about anything—sauces, stews, marinades, and dressings, just to name a few.

Peppermint

Peppermint is an ancient herb that has been imparting its cooling burst of flavor into food, drinks, and candy for millennia. It is an excellent herb to include in a detox

program, especially when there are problems with digestion. Mint is an exceptionally easy herb to grow at home. Dry the leaves and drink the tea as a healthy alternative to juice and coffee.



Probiotics

Research has shown that one of the absolute best ways to keep your body free of toxins is to take a daily probiotic. Probiotics are beneficial bacteria and yeast strains which restore balance to the digestive system by controlling the levels of naturally-occurring harmful bacteria in the digestive tract. They have also been shown to improve immune function, prevent liver disease and allergies, as well as alleviate inflammation.

A recent study published in the journal *Nutrition* found that probiotics aid in full-body detoxification and help rid the body of dangerous bacteria, heavy metals, and free radicals. They accomplish this by helping to degrade these harmful compounds in the digestive tract. On top of that, a 2010 study in the *European Journal of Clinical Nutrition* reported that taking a daily probiotic for 12 weeks decreased belly fat in participants by an average of 4.6%. This may be the result of probiotics allowing stores of environmentally-acquired toxins in abdominal fat to finally be eliminated.

Clay to Pull Toxins Out of Your Body

Therapeutic clay is an amalgam of highly absorbent volcanic minerals. Because of its absorbent properties, it

has been used in medicine as a bulk forming laxative and as base for many topical formulas. Ingestible clay is also widely used in many detoxification programs.

While there are many different kinds of clay, the safest, easiest to use and least expensive is Sodium Bentonite. It can be safely taken internally to improve overall digestive health and decrease toxin absorption. Clay baths, topical applications, and poultices can draw toxins out of the skin and reduce inflammation. Clay masks improve circulation and provide deep cleaning. For best results, purchase only high quality clay and be sure to follow all directions before using.

CHAPTER 17

Lifestyle Changes to Keep the Toxins at Bay

There are many cleansing and detox protocols to help protect us from the toxic overload we face daily. We've reviewed many of the most common strategies on the preceding pages. Having read all this, there should be no doubt that after years of toxin exposure, detoxification is a critical component of your long term health and well-being. Optimizing the function of your natural detoxification process will allow you to embark on a journey toward health and vitality that is as clean and toxin-free as you can make it.

Choosing to do a detox program is a commitment to your health and an investment in your future. Learning safe and effective strategies to reduce toxin exposure and maximize elimination can start with a two to three week program but should ultimately become a sustainable lifestyle. You'll feel the effects of improved detoxification in all aspects of your life. The dietary and lifestyle components that are responsible for those improvements can be incorporated into your life over the longer term.

In order to maximize your success in a detox program, there are several important dietary and lifestyle changes that are valuable additions to living a detox lifestyle long term.

Maintaining an Organic Whole Foods Diet

Whole foods are foods that are unprocessed and unrefined, or processed and refined as little as possible, before being consumed. Whole foods typically do not contain added salt, carbohydrates, or fat. And more importantly, they don't include potentially dangerous pesticides, additives, preservatives, or chemicals.

Whole foods provide optimum nutrition to your body without adding unnecessary and potentially harmful ingredients. Eating organic whole foods naturally high in fiber and antioxidants, such as green leafy vegetables, brightly colored fruits, and whole grains will naturally nourish and detoxify your body every time you eat.

By making a healthy lifestyle change and eating only minimally processed whole foods, you'll decrease your daily exposure to toxins significantly. This really is the simplest "detox diet" you could follow. Simply do most of your grocery shopping in the fruit and produce section and if you eat meat, choose organically-raised and antibiotic-free as often as possible. Just remember not to make your healthy food unhealthy by adding extra salt or preparing in unhealthy oils.

In addition to organic whole foods having a significantly lower toxic load, whole foods—particularly fruits and vegetables—support your body's own detox systems and organs.

The following whole foods should be eaten on a regular basis because they are especially good at promoting your body's natural detox system:

- **Apples** are high in fibrous pectin and promote healthy colon function.

- **Artichokes** promote liver health and soothe digestive problems like nausea and bloating thanks to a flavonoid antioxidant called silymarin. The leaves of artichokes contain cynarin which helps the liver produce bile, which in turn helps the body break down fats.
- **Beets** are loaded with B3, B6, C, and beta-carotene, iron, fiber, magnesium, zinc, and calcium—all key properties for colon and digestive tract cleansing. Beets also support gallbladder and liver health.
- **Leafy Greens** are full of vitamins, minerals, and chlorophyll, a pigment that allows plants to absorb light and has powerful detox properties because it binds to heavy metals and helps purge them from the body.
- **Lemons** help alkalize the body, in addition to having diuretic and anti-inflammatory properties.
- **Whole Grains** contain insoluble fiber that helps keep you from being constipated or bloated.

Remember, the only way you can be sure your whole foods are not GMOs is to buy certified organic whole foods!

Enjoy Whole Food Smoothies

Smoothies are a convenient and delicious way to consume the recommended daily allowance of fruits and vegetable that will not only nourish your body but help keep it clean.

Fruits and vegetables are our best natural sources of fiber. However, most people don't consume enough of either to reap their healthy cleansing benefits. Just about any organic fruit is perfect smoothie material. All you need is a good blender and your imagination.

The important basis for your green smoothie is a hearty green leafy vegetable. Favorites include spinach

leaves and kale, but you can also use Swiss chard, romaine lettuce, collard greens, and bok choy. Throw a handful into the blender, add a sliced apple, some blueberries, strawberries, and a banana for a sweet and creamy consistency. Add a few ounces of water, fruit juice, or almond milk and blend away. It's that simple.

If you're not a fan of vegetables, green smoothies are an excellent way to go. The fruits truly cover the taste of your leafy greens and you can make your smoothie as delicious as you like.

The best time to enjoy a smoothie is in the morning, but they make great healthy snacks for the evening.

Consider Growing Your Own Food

Growing your own whole foods is probably the only sure way to know you're eating clean healthy food. Buying organic food is certainly a step in the right direction but growing your own takes it to another level.



It's not necessary to have a large plot of land to grow your own food. Container gardens are extremely popular and can be cultivated on porches, decks, rooftops—really anywhere that your plants can get a healthy dose of sunshine.

There are many natural alternatives to chemical pesticides to help keep bugs from destroying your tasty veggies in your home garden. Here's a recipe for an all-purpose natural insecticide that is a favorite of many organic backyard gardeners.

All-Purpose Insecticide Spray

Ingredients:

- 15 cloves garlic
- 1 onion
- 3 cayenne peppers (or 3 jalapeno peppers or 1 tablespoon cayenne powder)
- 1/2 teaspoon liquid castile soap (fragrance free)
- 4 cups warm water

Preparation:

1. In a blender combine the water, garlic, onion, and peppers and puree.
2. Pour the mixture into a glass jar, secure the lid, and steep for 6 to 24 hours on the counter.
3. Strain through a cheesecloth, then add the liquid castile soap and mix well.
4. Load the mixture into a spray bottle and you're good to go

Use Cookware and Dishes that Don't Leach Chemicals Into Your Food

In previous chapters you learned that materials such as Teflon®, BPA, lead, aluminum, phthalates, and melamine are commonly found in everyday kitchenware products yet have been tied to disturbing health issues.

To cut down on this toxic exposure it's imperative for you to make changes in your kitchen starting with your pots and pans and the dishes you keep food in.

Follow these tips to make your kitchen and food preparation as toxin-free as possible:

1. Avoid plastic whenever possible when it comes to food and beverage.
2. If you must use plastic in the kitchen:
 - a. Choose BPA-Free, PVC-free
 - b. Never put plastic in the microwave! "Microwave-safe" only means that the plastic won't actually melt but the chemicals in the plastic will still migrate right into your food.
 - c. Do not store fatty, oily, or acidic foods in plastic.
3. Avoid hard plastic melamine dishes. They are made by combining the chemical melamine with formaldehyde (which is considered a known human carcinogen). Studies have shown that formaldehyde in melamine can leach from dishware into food.
4. Glass is a great alternative to storing food. Try getting set of glass storage containers with snap lock lids.
5. Avoid chemical-coated non-stick cookware, like Teflon®. As discussed in previous chapters, PFOA (the active ingredient) is a known carcinogen.



6. Use caution with aluminum cookware. Aluminum is a soft, highly reactive metal and can migrate in measurable amounts into food when used for cooking. Aluminum has been linked to brain disorders as well as behavioral abnormalities and is considered a toxic substance by the Agency for Toxic Substances & Disease Registry.
7. Avoid plastic utensils and accessories when cooking as these can melt or flake with extreme heat or wear down over time potentially causing chemicals to migrate into food. Instead choose stable materials such as: Wood, bamboo, silicone, or stainless steel.

Use Non-toxic Cleaning Products

In earlier chapters, we discussed the dangers lurking in your conventional cleaning products. You can't stop cleaning but you can opt for healthier methods, such as lemon, vinegar, and baking soda with which you can clean your entire home.

Vinegar is multi-purpose as a disinfectant, deodorizer and cleaner. Use in bathrooms and kitchens by mixing 2 tablespoons of white vinegar with a gallon of water, and dispense into a used spray bottle. Vinegar can also be used as a fabric softener; just add a ½ cup to the rinse cycle of your washing machine.

Lemon can be used to disinfect, clean, and polish. Lemon juice can also as a natural bleach so test surfaces first before use. Rub over cutting boards to freshen and take away odors. It can also be used to cut grease and dissolve soap scum.

Baking soda is an effective non-abrasive scrub, a deodorizer for refrigerators or laundry, and works well

with both vinegar and lemon as a versatile cleaner. Dust surfaces with baking soda, and then scrub with a moist sponge or cloth. For ovens coat the inside with a paste of baking soda and water, let stand overnight and scrub clean the next day. To clean your drain, pour baking soda into the sink and pour vinegar on top.

Switching to green cleaning is a great way to avoid additional toxic exposure in the home. Here are a few tips:

1. Clean mirrors and windows with newspaper and diluted vinegar. Toilet bowls can also be cleaned with vinegar.
2. Use Bon Ami powder for scrubbing. It is made from natural ingredients including baking soda and does not contain bleach or fragrances.
3. Borax powder and vinegar can be used for whitening clothes.
4. Avoid dusting with polishes. Use microfiber clothes to catch the dust. If you miss the polished look, try a little olive oil.
5. Steam is an efficient way to clean. Steam mops are readily available at any department store.
6. Tea tree oil and lavender oil break down mildew. Mix a quarter cup with a couple of cups of water and use as a disinfectant.
7. Avoid antibacterial cleaning products for



home use and instead use an alcohol-based hand sanitizer.

8. Mix equal parts vinegar and water for an all-purpose cleaner and degreaser.
9. Lemon juice can dissolve soap scum, clean, and shine brass and copper, and mixed with baking soda is good for scrubbing and removing surface stains.
10. Lemon naturally freshens kitchen drains.

Toxin-free Pest Control

The Environmental Health Coalition offers some great suggestions for effective toxin-free pest control for inside and outside of your home:

- 1. Use preventive methods first:** Start by sealing food in tight-fitting containers, not letting dirty dishes pile up, taking the trash out regularly, groom pets and routinely sweep and vacuum.
- 2. Monitor your pest population to discover when, why and where they come from:** Look in drawers, along walls and under the kitchen sink for their droppings or trails.
- 3. When preventive measures are not providing enough control, use the least toxic methods.**

Depending on which pest is giving you a problem, there are several different options.

Ants: Diatomaceous earth (look for the garden grade, not the pool grade) is a dehydrating powder that kills insects on contact. Sprinkle it in carpets or around doors and windows.

Fleas: Effective control of fleas requires an organized plan with attention to fleas in the carpet, on the animal, and in the yard. Soap and water traps for flea control in the house are extremely effective. In recent years, new products are available over the counter or from a veterinarian for use directly on pets such as Frontline Top Spot, Revolution, or Advantage. Experience shows animals tolerate these well, but they aren't entirely non-toxic so keep them away from small children. For outdoors, an insecticidal soap product can be used to discourage flea growth in your yard.

Cockroaches: Boric acid is a noncorrosive powder found in many commercial brands (look for 99% boric acid) carried in hardware stores and garden centers. Sprinkle it in cracks and crevices and behind furniture. **IT IS TOXIC BY MOUTH:** do not put it where children and pets can get to it.

Termites: Termite exterminators currently rely on Vikane (sulfuryl fluoride) for whole house fumigation and Dursban (chlorpyrifos) for spot treatment—both of which are toxic to the nervous system. EHC suggests removal or repair of infested wood, whole house heat, cold treatment and spot treatment with electricity, limonene, or other citrus derivatives.

Garden Pests (insect and weeds): Adhesive products and traps with sticky barriers are good for catching unwanted garden insects. Soap and water, inorganic dusts and oil spray are also good solutions to eliminate most insects, fungi, and weeds.

Don't Clothe Yourself in Toxic Chemicals

Many chemicals are applied to the textiles used in clothing in order to keep us safe (such as fire retardants) or to help our clothes remain easy to care for and easy to

wear. Our cloth-covered furniture, bedding, and drapes are also often treated with chemical compounds. But as discussed earlier, these chemicals can make us sick and should be avoided.

Take these steps limit your exposure to dangerous health hazards from clothing:

- Do not buy fire retardant clothing or any clothing or bedding with special finishes, i.e. wrinkle free, stain-resistant, easy care, or wash and wear. Those conveniences require that a toxic cocktail is applied to your garments.
- Choose natural-fiber textiles such as silk, cotton, hemp, and wool.
- Avoid the stain-free finish when purchasing a new sofa.

You can take your avoidance of chemicals in textile to the next level by only buying certified textiles. Textiles that follow certifications such as Global Organic Textile Standards are processed without harmful scouring or decaling chemicals or flame retardants, and use non-toxic dye.

It's also very important to avoid adding chemicals to your clothes with the products you clean them with. Below are natural alternatives¹⁴ to conventional laundry detergents and softeners:

1. **Baking Soda:** Add about 1/4 cup baking soda to the wash basin while it's filling with water and let it dissolve before adding the clothes. Baking soda soften the clothes, and regulates the pH of the wash water. It's is also very effective at reducing odors in the laundry.
2. **Vinegar** is an effective fabric softener. Pour 1/4 to 1/2 cup into the dispenser or pour it in during the rinse cycle.

3. Homemade Dryer Sheets: Take a small piece of cotton cloth and soak it with water, then wring it out so it's damp. Take your favorite essential oil (lavender, orange, tea tree, etc.) and put about 10 drops all over the cloth. After you've run your clothes through the dryer using heat, throw the wet cloth into the dryer and run the dryer again on a no heat cycle for about 10-15 minutes.

Don't Pamper Yourself with Toxic Chemicals

In previous chapters you learned about the toxic load that most personal care products carry. To avoid this danger, choose natural ways to cleanse, moisturize, and take care of your body and skin:

1. Sugar and olive oil mixed together create an effective facial scrub.
2. Coconut oil is an excellent moisturizer.
3. Tea tree oil is a healthy astringent
4. Deodorant “stones” or “crystals” are an effective alternative to aluminium-containing deodorants.
5. Avoid antibacterial cleansers, especially those containing Triclosan.

The Breast Cancer Fund Organization recommends The Environmental Working Group's Skin Deep cosmetic database to find safer products. That website is www.ewg.org/skindeep.com.



The Breast Cancer Fund Organization also lists the following types of products as the worst offenders:

- Anti-aging creams with lactic, glycolic, AHA, and BHA acids
- Hair dyes, especially dark permanent dyes
- Liquid hand soaps with triclosan/triclocarban
- Nail polish and removers with formaldehyde, DBP, or toluene (which can be contaminated with benzene)
- Skin lighteners with hydroquinone
- Heavily scented products
- Moisturizers, ointments, and skin creams with petrolatum (which can be contaminated with PAHs)
- Fungicides, shaving creams, hair gels, and hair coloring containing nonylphenol
- Hair spray, gel, mousse, or shaving cream that contains isobutane, a propellant that can be contaminated with 1,3-butadiene
- Sunscreens with UV filters that mimic estrogen

Filter the Air You Breathe

The Environmental Protection Agency estimates that indoor air can be two to five times more polluted than the air outside.

According to NASA¹⁵ some plants are effective at improving indoor air quality and are capable of absorbing chemicals such as benzene, formaldehyde, and trichloroethylene. The following is a list of those plants:

- Bamboo Palm (*Chamaedorea seifritzii*)
- Chinese Evergreen (*Aglaonema modestum*)

- English Ivy (*Hedera helix*)
- Gerbera Daisy (*Gerbera jamesonii*)
- Janet Craig (*Dracaena* “Janet Craig”)
- Marginata (*Dracaena marginata*)
- Mass cane/Corn Plant (*Dracaena massangeana*)
- Mother-in-Law’s Tongue (*Sansevieria laurentii*)
- Pot Mum (*Chrysanthemum morifolium*)
- Peace Lily (*Spathiphyllum* “Mauna Loa”)
- Warneckii (*Dracaena* “warneckii”)

NASA research has consistently shown that living, green, and flowering plants can remove several toxic chemicals from the air in building interiors. Research has determined that plant leaves, roots, and soil bacteria are all important in removing trace levels of toxic vapors.

Additional Tips:

- Change the filters in your home air systems on a regular basis.
- Use HEPA filters in your vacuum cleaners.
- Remove shoes when entering your home to avoid bringing in pesticides or heavy metal-tainted soil.
- Invest in a HEPA air purifier.
- Winterize your home to prevent outdoor pollution from entering through drafty areas.
- Replace incandescent lights with compact florescent bulbs to reduce energy emissions.

Avoid Outdoor Pollution

- Avoid being outside during high pollution or high smog alert days.

- Keep your car air system on the setting that recirculates air inside the car instead of drawing in air from outside.
- Exercise inside a gym or walk in a mall on high alert days.
- Eat at your desk to avoid getting out on high alert days.

Filter the Water You Drink

You should really give some thought to an effective water purification/filtration system for your household. In a previous chapter you learned that your tap water harbors many dangers for you and your family.

The safest water filtration would include filters in your showers as well as your kitchen, to help you avoid exposure to chemicals can that leach into your skin.

A quality water purification system can reduce your exposure to:

- Heavy metals
- Pharmaceuticals
- Industrial pollutants
- Microbial cysts
- Chlorine and chlorination by-products



Summary

You are exposed to an onslaught of toxic chemicals every day. Research has shown we are being impacted by thousands of hazardous toxins and there is no relief in sight. Education is the key to surviving and thriving amidst all this exposure. If you make positive changes to your diet and your lifestyle that promote detoxification, you will improve your health and your vitality.

Change is never easy, but it doesn't have to happen all at once. Take baby steps and slowly begin to reduce and then remove the things you've learned are harmful to your health. Make some changes to clean up your diet, and seriously consider a detox program.

Your body will awaken—rejuvenated and ready to accept the healthy habits you've learned.

We wish you the best of success on your journey to clean living!

¹ <http://www.toxicsaction.org/problems-and-solutions/pesticides>

² <http://www.ewg.org/foodnews/list.php>

³ <http://www.davidsuzuki.org/issues/health/science/toxics/dirty-dozen-cosmetic-chemicals/>

⁴ Environmental Working Group, "Skin Deep. Butylated Hydroxyanisole," [Online]. Available online: <http://www.ewg.org/skindeep/ingredient/700740/BHA/>. [Accessed 20 June 2013].

⁵ Heath R et al. (2000). Inhibition of the *Staphylococcus aureus* NADPH-dependent enoyl-acyl carrier protein reductase by triclosan and hexachlorophene. *Journal of Biological Chemistry*. 275: 654-59.

⁶ The Campaign for Safe Cosmetics (2007). A Poison Kiss: The Problem of Lead in Lipstick. Available online: <http://www.safecosmetics.org/docUploads/A%20Poison%20Kiss.pdf>. Accessed July 28, 2008.

⁷ http://www.cdc.gov/biomonitoring/PBDEs_FactSheet.html

⁸ <http://pubs.acs.org/doi/abs/10.1021/es063049z?journalCode=esthag>

⁹ Stephen J Genuis, Detlef Birkholz, Ilia Rodushkin, Sanjay Beesoon. Blood, urine, and sweat (BUS) study: monitoring and elimination of bioaccumulated toxic elements. *Arch Environ Contam Toxicol*. 2011 Aug ;61(2):344-57. Epub 2010 Nov 6. PMID: 21057782.

¹⁰ Margaret E Sears, Kathleen J Kerr, Riina I Bray. Arsenic, cadmium, lead, and mercury in sweat: a systematic review. *J Environ Public Health*. 2012 ;2012:184745. Epub 2012 Feb 22. PMID:22505948.

¹¹ Stephen J Genuis, Sanjay Beesoon, Detlef Birkholz, Rebecca A Lobo. Human excretion of bisphenol A: blood, urine, and sweat (BUS) study. *J Environ Public Health*. 2012 ;2012:185731. Epub 2011 Dec 27. PMID: 22253637.

¹² <http://www.ncbi.nlm.nih.gov/pubmed/18616067>

¹³ <http://www.sheknows.com/health-and-wellness/articles/851629/foods-and-herbs-that-cleanse>

¹⁴ <http://naturesnurtureblog.com/2011/06/01/how-to-naturally-freshen-your-laundry/>

¹⁵ <http://bay.ifas.ufl.edu/documents/NASASTudyshowscommonplantshelpreduceindoorairpollution.pdf>

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