

Här kommer en artikel från Dr. Mercolas hemsida. Finns en hel del intressant info för kampen mot slamspridning. Bl a nämns 12 ämnen som är mycket hormonstörande och de flesta finns i avloppsslam. Se också Mercolas råd till oss alla i slutet av artikeln.

Gunnar Lindgren

## Even Non-Carcinogenic Chemicals May Cause Cancer When Combined

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By Dr. Mercola

More than 80,000 chemicals are put into American household products, food, and food packaging each year, essentially without safety testing, generating more than \$763 billion in profits for the chemical industry.

More than 10,000 [chemical additives with questionable safety](#), as most have never been tested in humans, are allowed in food and [food packaging](#) alone.

Strong scientific evidence exists that exposure to these chemicals is contributing to cancer, reproductive abnormalities, early puberty<sup>1,2,3</sup> and a host of other endocrine, neurological, and metabolic problems.

Many industrial chemicals have been found to accumulate in the environment and in the human body. This can have significant generational effects, as everything an expectant mother takes into her body can potentially get passed along to her developing child.

There is convincing research showing prenatal exposure to certain industrial chemicals can lead to abnormal fetal development, diminished intelligence, behavior problems, infertility, abnormal sexual maturation, [metabolic dysfunction](#), and cancers later in life.

What little safety testing *is* done is typically done on chemicals in isolation. Mounting research reveals this is a major mistake, as when many chemicals are used together, their toxicity can increase exponentially.

### Chemicals in Combination Can Amplify Each Other's Effects

One recent assessment<sup>4</sup> by the National Food Institute at the Technical University of Denmark found that even small amounts of chemicals can amplify each other's adverse effects when combined.



#### Story at-a-glance

- » More than 80,000 chemicals are put into American products each year, essentially without safety testing
- » 10,000 chemical additives are allowed in food and food packaging alone and virtually none are tested for human safety
- » By acting on various pathways, organs and organ systems, cells, and tissues, the cumulative effects of non-carcinogenic chemicals can also act in concert to synergistically produce carcinogenic activity



As reported by the Institute:

*“A recently completed, four-year research project on cocktail effects in foods... has established that when two or more chemicals appear together, they often have an additive effect.*

*This means that cocktail effects can be predicted based on information from single chemicals, but also that small amounts of chemicals when present together can have significant negative effects.”*

## **Even Non-Carcinogenic Chemicals Can Act in Concert to Produce Cancer**

It's thought that one in five cancers may be caused by exposure to environmental chemicals, and according to a recent study<sup>5</sup> published in the journal *Carcinogenesis*, this includes chemicals deemed “safe” on their own.

As reported by The Guardian:<sup>6</sup>

*“The taskforce of 174 scientists in 28 countries investigated 85 prototypic chemicals that were not considered to be carcinogenic to humans, and they reviewed their effects against a long list of mechanisms that are important for cancer development.*

*Working in teams that focused on various hallmarks of cancer, the group found that 50 of those chemicals examined supported key cancer-related mechanisms at levels at which humans are routinely exposed.*

*The finding supports the idea that **chemicals may be capable of acting in concert with one another to cause cancer, even though low-level exposures to these chemicals individually might not be carcinogenic.***

*Lead researcher William Goodson III, from San Francisco's California Pacific Medical Center, said his results show one-at-a-time testing is out of date and must be modernized.” [Emphasis mine]*

Basically, the analysis found that by acting on various pathways, organs and organ systems, cells and tissues, the cumulative effects of non-carcinogenic chemicals can act in concert to synergistically produce carcinogenic activity, turning conventional testing for carcinogens on its ear.

Lead author Dr. William Goodson told Michigan Radio:<sup>7</sup>

*“[W]hat we're realizing, and what this group spent several days talking about, was that there's reason to think that it doesn't take one chemical to take it all the way from normal to cancer.*

*One chemical can take it part way, another chemical will take it another portion of the way, and maybe a second, third, or fourth chemical will take it all the way.”*

## Another Chemical Route to Cancer: Genome Instability

A second study<sup>8</sup> published in the same journal suggests that exposure to chemicals at low doses may promote carcinogenesis by inducing genome instability, i.e. by enhancing the genome's tendency to mutate.

According to the authors:

*“This review raises the hypothesis that in addition to known human carcinogens, exposure to low dose of other chemicals present in our modern society could contribute to carcinogenesis by indirectly affecting genome stability...”*

*The purpose of this review is to describe the crucial aspects of genome instability, to outline the ways in which environmental chemicals can affect this cancer hallmark and to identify candidate chemicals for further study.*

*The overall aim is to make scientists aware of the increasing need to unravel the underlying mechanisms via which chemicals at low doses can induce genome instability and thus promote carcinogenesis.”*

Chemicals selected for this study that, indirectly, may contribute to cancer-generating genome instability include:

| <b>Chemical</b>      | <b>Pathway or Mechanism of Effect on Genome Stability</b>                                     |
|----------------------|---|
| Heavy metals         | DNA repair, epigenetic modification, DNA damage signaling, telomere length                    |
| Acrylamide           | DNA repair, chromosome segregation  |
| Bisphenol-A (BPA)    | Epigenetic modification, DNA damage signaling, mitochondrial function, chromosome segregation |
| Benomyl              | Chromosome segregation  |
| Quinones             | Epigenetic modification   |
| nano-sized particles | Epigenetic pathways, mitochondrial function, chromosome segregation, telomere length          |

## The 12 Worst Hormone Disrupting Chemicals

Considering the tens of thousands of chemicals we're exposed to in our everyday living, it's simply not possible to review the potential effects of them all. Some do stand out above others though, in terms of what we already know.

For example, endocrine disrupting chemicals (EDC) alter the normal function of your [hormones](#), which can have far-reaching health effects. A hormone's job is to interact

with the cells in your body, sending signals that instruct them to perform certain tasks, and EDCs interfere with this communication process.

These chemicals are widely used not only in household products such as plastics, but also in cosmetics and personal care products. In 2013, the Environmental Working Group<sup>9</sup> identified 12 of the most troublesome hormone wreckers. Surprisingly, along with some very well-known EDCs, the review also identified several you might not normally associate with hormone disruption, such as lead, mercury, and arsenic.

While these are notorious for other harmful health effects, hormone disruption is not typically discussed in relation to them. The EWG's "dirty dozen" list for the [12 worst endocrine disruptors](#) are outlined in the following table. I've written about many of these in prior articles, so for more information about any particular one, please follow the links.

|                             |   |  |               |
|-----------------------------|---|--|---------------|
| Bisphenol-A (BPA)           | Dioxin  | <a href="#">Atrazine</a>                   | Phthalates    |
| <a href="#">Perchlorate</a> | Fire retardants                                 | <a href="#">Lead</a>                       | Mercury       |
| <a href="#">Arsenic</a>     | <a href="#">Perfluorinated chemicals (PFCs)</a> | <a href="#">Organophosphate pesticides</a> | Glycol ethers |

### **Phthalates and PFCs Are Lowering Men's Sperm Count**

Infertility is on the rise and phthalates, found in all sorts of plastic products, from shower curtains to car dashboards, may be to blame. Phthalates make the plastic soft and pliable, and the softer the plastic, the more of these chemicals it typically contains, with some concentrations reaching as high as 50 percent. As reported by the Daily Star:<sup>10</sup>

*“Reproduction researchers said chemicals found in the everyday plastics are ruining men's chances of having a family. Alarming figures reveal that **just one in four men young men are producing "good" quality sperm, and the average volume has declined by a quarter since the 1940s.**”* [Emphasis mine]. One of the reasons for this is related to the fact that phthalates inhibit testosterone production.

While men are exposed to this plastic chemical throughout their lives, the exposure typically begins in utero, and when testosterone production is reduced during gestation, a male child will tend to have naturally lower sperm count. Perfluorinated chemicals (PFCs) that make non-stick pans have also been found to reduce the quality of sperm. According to lead researcher Niels Jorgensen, a consultant at the Department of Growth and Reproduction at Rigshospitalet in Copenhagen, Denmark, his study raises significant cause for concern.

Assessing the sperm quality of nearly 5,000 Danish men over the course of 15 years,

he found that only 25 percent of men had good quality sperm. Fifteen percent had sperm of such poor quality they will likely need fertility help should they decide to have children. The remainder had lower than normal quality sperm, and at least 27 percent of men can expect reproductive delays.

Three recent articles<sup>11</sup> in the June 2015 issue of *Chemical & Engineering News* examine the current state of phthalates, including proposed restrictions on their use in large-volume applications, and possible replacement chemicals. Unfortunately, many of the replacements are still within the phthalate family of chemicals, and while they may appear to have a less hazardous profile, this really does not address the problem---it simply masks it for a while.

A perfect example of this is bisphenol-A (BPA), which many manufacturers have simply replaced with [bisphenol-S \(BPS\)](#). Lo and behold, BPS has many of the same health effects as BPA, and appears to be just as hazardous. This is why I changed my recommendation to look for BPA-free plastics, as such labels may be completely meaningless in terms of safety.

### **Antimony and Other Toxic Flame Retardants Need Tougher Regulation**

[Fire retardants](#) are another group of chemicals you're likely coming into contact with on a daily basis, and they've been linked to a long list of health hazards, including infertility, birth defects, neurodevelopmental delays, reduced IQ, behavioral problems, hormone disruptions, and cancer. In fact, flame retardant chemicals have been identified as one of 17 high priority chemical groups that should be avoided to [reduce breast cancer](#).<sup>12,13</sup>

Furnishings, carpeting, mattresses, and electronics are prime sources of flame retardants, as are numerous baby items and clothing. Antimony is a natural metalloid used as a flame retardant in fabrics and plastics, including items for young children. And while human cancer studies on antimony have been inconclusive, animal studies have linked inhalation exposure to lung tumors. As reported by The Guardian:<sup>14</sup>

*“The [Environmental Working Group] EWG believes it is time to push the government to deliver. “We need a strong federal program that provides [Environmental Protection Agency] EPA with the adequate resources that ensures chemicals are safe, quickly reviews the most dangerous chemicals, sets tough deadlines and preserves the role for the states,” said [EWG’s government affairs director, Christine] Hill... The EWG believes the US government should take a more active role in protecting consumers from toxins such as antimony.”*

### **Chemical Lobby Seeking Protection by Gutting Chemical Regulations**

On June 23, the House of Representatives passed the *Vitter-Udall bill*, which updates the 1976 Toxic Substances Control Act.<sup>15</sup> A companion bill (S.697) is slated to come before the US Senate sometime this month. Together, the measures would require the EPA to start studying the health effects of about 64,000 different chemicals. While that sounds like a good idea that's well overdue, things are not as rosy as they

appear...

It was discovered that the draft of this bill was co-authored by the American Chemistry Council, a trade organization and lobbyist for the chemical industry.<sup>16,17</sup> One of many problems with the bill was that it actually *restricts* states' ability to limit or ban certain chemicals. To address apparent conflicts of interest, Senators Barbara Boxer (D-Calif) and Edward Markey (D-Mass) introduced a revised version of the bill,<sup>18</sup> which included more stringent provisions and did not preempt state laws. Alas, in the end, it was the industry-backed and co-authored bill that won the House vote... In response, Ken Cook, president of the Environmental Working Group noted:<sup>19</sup> *"We commend the House for its focus on the need to overhaul chemical policy, but this piece of legislation will not do the job. It tips much too far in favor of an industry in serious need of regulation."*

Another point to consider is this: earlier in June a House panel approved a bill that cuts EPA funding by nine percent<sup>20</sup>--a whopping \$718 million—in 2016. This is a significant reduction, especially when you consider the EPA's funding has already been reduced by 20 percent since 2011. Considering the EPA's dwindling funding, it really raises questions about the agency's ability to properly test tens of thousands of chemicals in a timely fashion...

## **Coalition Petitions for Ban on Most Common Group of Flame Retardants**

Meanwhile, scientists are now taking a stronger stance against flame retardants as a group, noting that addressing chemicals one-by-one just prolongs the endangerment of public health indefinitely.<sup>21</sup> To end the "whack-a-mole" game where one dangerous chemical is replaced by another untested chemical, a coalition of medical, consumer, and worker safety groups have created a petition<sup>22,23</sup> asking the Consumer Product Safety Commission to ban *all* organohalogens, the most commonly used flame retardants found in children's goods, furniture, mattresses, and electronics' casings. This class of chemicals includes:

- Polychlorinated biphenyls (PCBs), banned in 1977 due to health concerns
- Polybrominated diphenyl ether (PBDE), phased out in 2005 once it was discovered that it was just as hazardous as the PCBs it replaced
  - Tris phosphate (TDCIPP), listed as a human carcinogen under California's Proposition 65,<sup>24</sup> has also been linked to heart disease, obesity and cancer<sup>25</sup>
  - Triphenyl phosphate (TPHP), associated with altered hormone levels, reduced sperm concentrations, and endocrine disruption<sup>26</sup>
  - Firemaster 550, which replaced PBDEs that were removed from the market,<sup>27</sup> has since been linked to heart disease, obesity and cancer<sup>28</sup>

## **Food Is a Primary Source of Exposure to Many Toxic Chemicals**

In addition to furnishings, building materials, personal care products, electronics, and innumerable other household products, many hazardous chemicals make their way

into your body via the food you eat. Researchers analyzing<sup>29,30</sup> the diets of children in California to assess the health effects from food contaminants found that food may be the primary route of exposure to:

- Heavy metals
- Environmental pollutants such as DDT and dioxins
- Pesticides

Disturbingly, ALL of the 364 children tested had levels of arsenic, dieldrin (a banned pesticide), DDE (a metabolite of DDT), and dioxins exceeding benchmark levels for cancer. According to the authors:

*“Dietary strategies to reduce exposure to toxic compounds for which cancer and non-cancer benchmarks are exceeded by children vary by compound. These strategies include **consuming organically produced dairy and selected fruits and vegetables to reduce pesticide intake, consuming less animal foods (meat, dairy, and fish) to reduce intake of persistent organic pollutants and metals, and consuming lower quantities of chips, cereal, crackers, and other processed carbohydrate foods to reduce acrylamide intake.**”* [Emphasis mine]

You may be surprised by some of the foods found to be primary culprits of toxic exposure:

- Chicken was the number one source of arsenic among preschoolers
- Dairy was the primary source of lead, banded pesticides, and dioxins (it should be noted that this was most likely conventional, pasteurized dairy from cows raised in confined animal feeding operations or CAFOs)
- Seafood was the number one source of mercury exposure

## Tips to Help You Avoid Toxic Chemicals

It's quite clear that the US government is falling short when it comes to protecting you from the onslaught of toxic chemicals that may have devastating generational effects. Within such a dysfunctional system, you are the best one to keep your family safe. Although no one can successfully steer clear of ALL chemicals and pollutants, you can minimize your exposure by keeping a number of key principles in mind.

Eat a diet focused on locally grown, fresh and ideally organic whole foods. Processed and packaged foods are a common source of chemicals such as BPA and phthalates. Wash fresh produce well, especially if it's not

Choose grass-pastured, sustainably raised meats and dairy to reduce your exposure to hormones, pesticides, and fertilizers. Avoid milk and other dairy products that contain the genetically engineered recombinant bovine

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|--|--|
| <p>organically grown.</p>  | <p>growth hormone (rBGH or rBST).</p>  |
| <p>Rather than eating conventional or farm-raised fish, which are often heavily contaminated with PCBs and mercury, supplement with a high-quality krill oil, or eat fish that is wild-caught and lab tested for purity, such as wild caught Alaskan salmon.</p>                           | <p>Buy products that come in glass bottles rather than plastic or cans, as chemicals can leach out of plastics (and plastic can linings), into the contents; be aware that even “BPA-free” plastics typically leach other endocrine-disrupting chemicals that are just as bad for you as BPA.</p>  |
| <p>Store your food and beverages in glass, rather than plastic, and avoid using plastic wrap.</p>  | <p>Use glass baby bottles.</p>   |
| <p>Replace your non-stick pots and pans with ceramic or glass cookware.</p>  | <p>Filter your tap water for both drinking AND bathing. If you can only afford to do one, filtering your bathing water may be more important, as your skin absorbs contaminants. To remove the endocrine disrupting herbicide Atrazine, make sure your filter is certified to remove it. According to the EWG, perchlorate can be filtered out using a reverse osmosis filter.</p> |
| <p>Look for products made by companies that are Earth-friendly, animal-friendly, sustainable, certified organic, and GMO-free. This applies to everything from food and personal care products to building materials, carpeting, paint, baby items, furniture, mattresses, and others.</p> | <p>Use a vacuum cleaner with a HEPA filter to remove contaminated house dust. This is one of the major routes of exposure to flame retardant chemicals.</p>  |
| <p>When buying new products such as furniture, mattresses, or carpet padding, consider buying flame retardant-free varieties, containing naturally less flammable materials, such as leather, wool, cotton, silk, and Kevlar.</p>  | <p>Avoid stain- and water-resistant clothing, furniture, and carpets to avoid perfluorinated chemicals (PFCs).</p>   |
| <p>Make sure your baby's toys are BPA-free, such as pacifiers, teething rings and anything your child may be prone to suck or chew on—even books, which are often plasticized. It's</p>  | <p>Use natural cleaning products or make your own. Avoid those containing 2-butoxyethanol (EGBE) and methoxydiglycol (DEGME)—two toxic glycol ethers that can compromise your</p>  |



|   |   |
|---|---|
| <p>advisable to avoid all plastic, especially flexible varieties.</p>   | <p>fertility and cause fetal harm.</p>  |
| <p>Replace your vinyl shower curtain with a fabric one.</p>   | <p>Replace <b>feminine hygiene products</b> (tampons and sanitary pads) with safer alternatives.</p>  |
| <p>Switch over to organic toiletries, including shampoo, toothpaste, antiperspirants, and cosmetics. EWG's Skin Deep database<sup>31</sup> can help you find personal care products that are free of <b>phthalates</b> and other potentially dangerous chemicals.</p> | <p>Look for fragrance-free products. One artificial fragrance can contain hundreds—even thousands—of potentially toxic chemicals. Avoid <b>fabric softeners</b> and dryer sheets, which contain a mishmash of synthetic chemicals and fragrances.</p> |