

Dirty Dozen

ENDOCRINE DISRUPTORS



A LIST OF 12 HORMONE-ALTERING CHEMICALS
AND HOW TO AVOID THEM

(KEEP A
BREAST)

KEEP-A-BREAST.ORG x EWG.ORG





Dirty Dozen

THERE IS NO END TO THE TRICKS
THAT ENDOCRINE DISRUPTORS
CAN PLAY ON OUR BODIES!

- Increasing production of certain hormones
- Decreasing production of other hormones
- Imitating hormones; turning one hormone into another
- Interfering with hormone signaling
- Telling cells to die prematurely; competing with essential nutrients
- Binding to essential hormones
- Accumulating in organs that produce hormones

SOME MAY SAY THAT IMITATION IS THE SINCEREST FORM OF FLATTERY, BUT DO YOU REALLY WANT A CHEMICAL USED IN PLASTICS IMITATING THE SEX HORMONE ESTROGEN IN YOUR BODY?



BPA

How to avoid it:

Unfortunately, this synthetic hormone can trick the body into thinking it's the real thing – and the results aren't pretty. BPA has been linked to everything from breast and others cancers to reproductive problems, obesity, early puberty and heart disease, and according to government tests, 93 percent of Americans have BPA in their bodies!

- **GO FRESH INSTEAD OF CANNED**
Many food cans have BPA in their linings.
- **GO BPA-FREE**
Look for products labeled as BPA-free.
- **AVOID PLASTICS**
Marked "PC" for polycarbonate, or with recycling label #7.
- **SAY NO TO RECEIPTS**
Thermal paper is often coated with BPA.
- **USE PLASTIC ALTERNATIVES**
Use glass, porcelain or stainless steel containers for hot foods and liquids.

For more tips, check out: ewg.org/bpa

DID YOU KNOW THAT A SPECIFIC
SIGNAL PROGRAMS CELLS IN OUR
BODIES TO DIE?



PHTHALATES

It's totally normal and healthy for 50 billion cells in your body to die every day! But studies have shown that chemicals called phthalates can trigger what's known as "death-inducing signaling" in testicular cells, making them die earlier than they should. Yep, that's cell death – in your man parts. If that's not enough, studies have linked phthalates to hormone changes, lower sperm count, less mobile sperm, birth defects in the male reproductive system, obesity, diabetes and thyroid irregularities.



How to avoid it:

- **AVOID PLASTICS**
Such as plastic food containers and plastic wrap made from PVC, with recycling label #3, and children's toys (some phthalates are already banned in kid's products.)
- **AVOID FRAGRANCE**
In personal care products, read labels and avoid products that simply list added "fragrance," since this catch-all term sometimes means hidden phthalates.

Find phthalates-free personal care products with EWG's Skin Deep Database: ewg.org/skindeep

DIOXINS ARE MULTI-TASKERS...
BUT NOT IN A GOOD WAY!



DIOXIN

THEY FORM DURING MANY INDUSTRIAL PROCESSES WHEN CHLORINE OR BROMINE ARE BURNED IN THE PRESENCE OF CARBON AND OXYGEN. DIOXINS CAN DISRUPT THE DELICATE WAYS THAT BOTH MALE AND FEMALE SEX HORMONE SIGNALING OCCURS IN THE BODY. THIS IS A BAD THING!

Recent research has shown that exposure to low levels of dioxin in the womb and early in life can both permanently affect sperm quality and lower the sperm count in men during their prime reproductive years. But that's not all! Dioxins are very long-lived, build up both in the body and in the food chain, are powerful carcinogens and can also affect the immune and reproductive systems.



How to avoid it:

THAT'S PRETTY DIFFICULT, SINCE THE ONGOING INDUSTRIAL RELEASE OF DIOXINS HAS MEANT THAT THE AMERICAN FOOD SUPPLY IS WIDELY CONTAMINATED.

- **CUT DOWN ON EXPOSURE**
Cut down on animal products. Limit consumption of meat, eggs, fish, milk and butter.

ORIGINALLY PRODUCED
FOR WARFARE.



ORGANOPHOSPHATE PESTICIDES

Neurotoxic organophosphate compounds that the Nazis produced in huge quantities for chemical warfare during World War II were luckily never used. After the war ended, American scientists used the same chemistry to develop a long line of pesticides that target the nervous systems of insects. Despite many studies linking organophosphate exposure to effects on brain development, behavior and fertility, they are still among the more common pesticides in use today. A few of the many ways that organophosphates can affect the human body include interfering with the way testosterone communicates with cells, lowering testosterone and altering thyroid hormone levels.

How to avoid it:

- BUY ORGANIC PRODUCE
- GROW YOUR OWN FOOD
- USE EWG'S SHOPPER'S GUIDE TO PESTICIDES IN PRODUCE

Which can help you find the fruits and vegetables that have the fewest pesticide residues.

Check it out here: ewg.org/foodnews

YOU MAY OR MAY NOT LIKE
HEAVY METAL MUSIC, BUT LEAD
IS ONE HEAVY METAL
YOU WANT TO AVOID.



LEAD

It's well known that lead is toxic, especially to children. Lead harms almost every organ system in the body and has been linked to a staggering array of health effects, including permanent brain damage, lowered IQ, hearing loss, miscarriage, premature birth, increased blood pressure, kidney damage and nervous system problems. But few people realize that one other way that lead may affect your body is by disrupting your hormones. In animals, lead has been found to lower sex hormone levels. Research has also shown that lead can disrupt the hormone signaling that regulates the body's major stress system (called the HPA axis). You probably have more stress in your life than you want, so the last thing you need is something making it harder for your body to deal with it – especially when this stress system is implicated in high blood pressure, diabetes, anxiety and depression.



How to avoid it:

- **KEEP YOUR HOME CLEAN & WELL MAINTAINED**
Crumbling old paint is a major source of lead exposure, so get rid of it carefully.
- **DRINK FILTERED WATER**
A good water filter can also reduce your exposure to lead in drinking water.
- **EAT BETTER**
Studies have also shown that children with healthy diets absorb less lead.

WHAT DO BREAST MILK AND
POLAR BEARS HAVE IN COMMON?



FIRE RETARDANTS

In 1999, some Swedish scientists studying women's breast milk discovered something totally unexpected: The milk contained an endocrine-disrupting chemical found in fire retardants, and the levels had been doubling every five years since 1972! These incredibly persistent chemicals, known as polybrominated diphenyl ethers or PBDEs, have since been found to contaminate the bodies of people and wildlife around the globe – even polar bears. These chemicals can imitate thyroid hormones in our bodies and disrupt their activity. That can lead to lower IQ, among other significant health effects. While several kinds of PBDEs have now been



How to avoid it:

IT'S VIRTUALLY IMPOSSIBLE, BUT PASSING BETTER TOXIC CHEMICAL LAWS THAT REQUIRE CHEMICALS TO BE TESTED BEFORE THEY GO ON THE MARKET WOULD HELP REDUCE OUR EXPOSURE.

- **BUY FLAME RETARDANT FREE PRODUCTS**
Look for labels on furniture.
- **CLEAN YOUR HOUSEHOLD**
Vacuum with a HEPA filter and wet mop household surfaces.
- **WASH YOUR HANDS BEFORE EATING**
- **DISPOSE OF DAMAGED FURNITURE CUSHIONS**
Don't reupholster furniture or replace old carpeting yourself (the padding underneath may contain PBDEs).

Find more tips here: ewg.org/pbdefree

ARSENIC ISN'T JUST FOR MURDER
MYSTERIES ANYMORE.



ARSENIC

In fact, this toxin is lurking in your food and drinking water. If you eat enough of it, arsenic will kill you outright. In smaller amounts, arsenic can cause skin, bladder and lung cancer. Basically, bad news. Less well known: Arsenic messes with your hormones! Specifically, it can interfere with normal hormone functioning in the glucocorticoid system that regulates how our bodies process sugars and carbohydrates. What does that mean for you? Well, disrupting the glucocorticoid system has been linked to weight gain/loss, protein wasting, immunosuppression, insulin resistance (which can lead to diabetes), osteoporosis, growth retardation and high blood pressure.



How to avoid it:

- **DRINK FILTERED WATER**
Reduce your exposure by using a water filter that lowers arsenic levels.

WHAT HAPPENS WHEN YOU
INTRODUCE HIGHLY TOXIC
CHEMICALS INTO NATURE AND
TURN YOUR BACK? FOR ONE THING,
FEMINIZATION OF MALE FROGS.



ATRAZINE

That's right, researchers have found that exposure to even low levels of the herbicide atrazine can turn male frogs into females that produce completely viable eggs. Atrazine is widely used on the majority of corn crops in the United States, and consequently it's a pervasive drinking water contaminant.

Atrazine has been linked to breast tumors, delayed puberty and prostate inflammation in animals, and some research has linked it to prostate cancer in people.

How to avoid it:

- **BUY ORGANIC PRODUCE**
Or learn to grow your own.
- **DRINK FILTERED WATER**
Get a drinking water filter certified to remove atrazine.

CAUTION: THAT SUSHI YOU ARE EATING COULD BE HAZARDOUS TO YOUR HEALTH.



MERCURY

Mercury, a naturally occurring but toxic metal, gets into the air and the oceans primarily through burning coal. Eventually, it can end up on your plate in the form of mercury-contaminated seafood. Pregnant women are the most at risk from the toxic effects of mercury, since the metal is known to concentrate in the fetal brain and can interfere with brain development. Mercury is also known to bind directly to one particular hormone that regulates women's menstrual cycle and ovulation, interfering with normal signaling pathways. In other words, hormones don't work so well when they've got mercury stuck to them! The metal may also play a role in diabetes, since mercury has been shown to damage cells in the pancreas that produce insulin, which is critical for the body's ability to metabolize sugar.



How to avoid it:

- **EAT SUSTAINABLE SEAFOOD**
Wild salmon and farmed trout are good choices.

Find more tips here: [ewg.org/consumer-guides/ewgs-consumer-guide-seafood](https://www.ewg.org/consumer-guides/ewgs-consumer-guide-seafood)

WHO NEEDS FOOD TAINTED
WITH ROCKET FUEL?!



PERCHLORATE

That's right, perchlorate, a component in rocket fuel, contaminates much of our produce and milk, according to EWG and government test data. When perchlorate gets into your body it competes with the nutrient iodine, which the thyroid gland needs to make thyroid hormones. Basically, this means that if you ingest too much of it you can end up altering your thyroid hormone balance. This is important because it's these hormones that regulate metabolism in adults and are critical for proper brain and organ development in infants and young children.



How to avoid it:

- **IODINE**
Be sure you're getting enough iodine in your diet. Using iodized salt is one good way.
- **DRINK FILTERED WATER**
Use a reverse osmosis filter for water.

THE PERFLUORINATED CHEMICALS
USED TO MAKE NON-STICK
COOKWARE CAN STICK TO YOU.



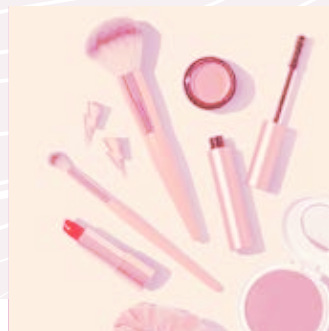
PERFLUORINATED CHEMICALS (PFCs)

Perfluorochemicals are so widespread and extraordinarily persistent that 99 percent of Americans have these chemicals in their bodies. One particularly notorious compound called PFOA has been shown to be “completely resistant to biodegradation.” In other words, PFOA doesn’t break down in the environment – ever. That means that even though the chemical was banned after decades of use, it will be showing up in people’s bodies for countless generations to come. This is worrisome, since PFOA exposure has been linked to decreased sperm quality, low birth weight, kidney disease, thyroid disease and high cholesterol, among other health issues. Scientists are still figuring out how PFOA affects the human body, but animal studies have found that it can affect thyroid and sex hormone levels.

How to avoid it:

- **SKIP NON-STICK PANS**
Purchase pans labeled no PFOA, PFAS and PFCs.
- **USE CAST IRON OR STAINLESS STEEL COOKWARE**
- **AVOID STAIN & WATER RESISTANT COATINGS**
Especially on clothing, furniture and carpets.

SHRUNKEN TESTICLES:
DO WE HAVE YOUR FULL
ATTENTION NOW?



GLYCOL ETHERS

This is one thing that can happen to rats exposed to chemicals called glycol ethers, which are common solvents in paints, cleaning products, brake fluid and cosmetics. Worried? You should be. The European Union says that some of these chemicals “may damage fertility or the unborn child.” Studies of painters have linked exposure to certain glycol ethers to blood abnormalities and lower sperm counts. And children who were exposed to glycol ethers from paint in their bedrooms had substantially more asthma and allergies.

How to avoid it:

- **CHECK LABELS**
Avoid products with the ingredients 2-butoxyethanol (EGBE) and methoxydiglycol (DEGME).
- **LOOK FOR NON-TOXIC OPTIONS**
In cleaning products, cosmetics, and paint.

**(KEEP A
BREAST)**

The Keep A Breast Foundation™ is the leading youth-focused, global, nonprofit breast cancer organization. Our mission is to eradicate breast cancer for future generations.

We provide support programs for young people impacted by cancer and educate people about prevention, early detection, and cancer-causing toxins in our everyday environment.

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