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How Childhood Exposure to Endocrine-Disrupting Chemicals Shapes Your Food Cravings

Analysis by Dr. Joseph Mercola | August 28, 2025

STORY AT-A-GLANCE

- Endocrine-disrupting chemicals (EDCs) interfere with natural hormone functions, mimicking or blocking signals that control metabolism, appetite, mood, and learning throughout life
- Early exposure to EDCs rewires the brain reward systems, causing lifelong preferences for unhealthy foods and contributing to weight gain and metabolic issues
- Nearly 70% of children's diets are composed of ultraprocessed foods loaded with EDCs like artificial dyes, preservatives, BPA, phthalates, and artificial sweeteners
- Prenatal EDC exposure increases childhood obesity, attention deficit/hyperactivity disorder (ADHD), lower intelligence quotient (IQ) scores, and cognitive delays, with boys being particularly more vulnerable to these effects
- Avoid ultraprocessed foods, use glass containers, filter water, replace plastic kitchenware, choose natural textiles, and consider natural progesterone supplementation to combat the effects of EDCs

Endocrine-disrupting chemicals (EDCs) are substances that interfere with your body's natural hormone functions. They mimic or block normal hormonal signals, disrupting metabolism, appetite, mood, and learning.

Without intervention, the consequences of EDCs eventually affect future generations. According to a new study, children experience persistent cravings of unhealthy food, develop obesity, and experience problems in cognitive and physical growth.

The Impact of EDCs on the Brain's Reward Pathways

In a study presented at ENDO 2025, the annual meeting of the Endocrine Society, researchers from the University of Texas at Austin investigated how early-life exposure to EDCs alters food preferences and long-term eating behaviors.[1]

The team exposed 15 male rats and 15 female rats to an EDC cocktail dubbed NeuroMix (NMX). Next, they observed the rats closely throughout their entire lifespans, assessing how these chemicals influenced their food choices as they reached adulthood.[2]

- **EDCs rewire your brain —** Reward pathways are areas of your brain involved in creating pleasure sensations when you eat certain foods, motivating you to keep choosing them. In rats exposed early to NMX, brain analysis revealed significant changes in gene expression within these reward areas. According to the official press release by the Endocrine Society:[3]

  > *"Findings showed that male rats with early-life exposure to endocrine-disrupting chemicals had a temporary preference for the sucrose solution, while female rats showed a strong preference for high-fat food that resulted in weight gain."*

- **EDCs disrupt hormonal balance —** Male rats experienced additional biological effects by NMX, notably a marked reduction in testosterone levels. Testosterone is a critical hormone influencing muscle growth, energy levels, mood, and even weight regulation. Reduced testosterone often leads to obesity, lower energy, and disrupted metabolic health.[4] This effect highlights an additional risk for men exposed to these chemicals during their early developmental stages.

Meanwhile, EDCs maintained normal estradiol levels in female rats. Estradiol refers to a primary female sex hormone important for reproductive health and metabolism.

- **The mechanisms behind these effects —** Going deeper into the analysis, the researchers showed the brain activity upon exposure to NMX:[5]

  > *"NMX induced sex-specific changes in gene expression across regions of the brain that support reward processing and feeding behavior; using Gene Ontology (GO), the functional significance of these changes related primarily to processes involved in epigenetic regulation (e.g., chromatin remodeling, histone modification, and DNA methylation) and transcriptional activity.*
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  > *These processes were downregulated in the lateral hypothalamus and ventral tegmental area of NMX-exposed males, and upregulated in the nucleus accumbens of both sexes."*

EDCs Are Lurking in Ultraprocessed Foods

According to a report by the National Public Radio (NPR), much of an American child's diet consists of ultraprocessed foods — nearly 70%, in fact.[6] While ultraprocessed foods have already been **established for causing various health problems**, such as diabetes, heart disease, and obesity, research also shows that they are significant sources of EDCs. Thus, consuming them perpetuates a cycle of continuous EDC exposure and poor health.

In a study published in the Journal of Xenobiotics, researchers explored how common additives in ultraprocessed foods act as EDCs, altering hormone function and contributing to significant health problems. The team reviewed various additives, including artificial dyes, preservatives, plasticizers like bisphenol A (BPA), phthalates, and artificial sweeteners, uncovering their hidden impacts on your body's endocrine system.[7]

- **You've been exposed to EDCs for a long time —** The alarming conclusion by the study is that exposure to EDCs isn't rare or occasional — it's a daily occurrence for most people. Regular intake of these additives directly interferes with hormonal balance, influencing critical processes in your body like thyroid function, reproductive health, and metabolism.

- **Ingredients that contain EDCs —** Among the additives studied, artificial food dyes like tartrazine and erythrosine stood out prominently. Both are extensively used to enhance the appearance of ultraprocessed snacks, cereals, candies, and beverages. Moreover, these colorful chemicals significantly disrupt thyroid hormones:[8]

  > *"Erythrosine has been shown to affect the binding of thyroid hormones to their receptors, which are necessary for normal thyroid hormone signaling. By interfering with this process, erythrosine may disrupt the regulation of gene expression and other physiological processes controlled by thyroid hormones.*
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  > *Specifically, erythrosine action is associated with decreased levels of T3 and T4 and increased levels of thyroid-stimulating hormone (TSH), which may indicate thyroid dysfunction or an adaptive response to erythrosine exposure."*

- **Other EDCs in ultraprocessed foods —** Preservatives such as parabens, commonly added to packaged baked goods, sauces, and beverages, were another significant finding. Parabens act similarly to estrogen, your primary female sex hormone, by binding to estrogen receptors:[9]

  > *"Parabens inhibit the activity of enzymes such as aromatase, which converts androgens to estrogens or affects other enzymes involved in hormone metabolism. These alterations in hormone synthesis and metabolism can disrupt the normal production and breakdown of hormones in the body."*

- **Food packaging also contributes to further exposure —** The study also scrutinized plastic-related chemicals like BPA and **phthalates**, frequently used in food packaging.

  BPA, often found in plastic bottles and food can linings, disrupts estrogen and thyroid hormone functions. Phthalates, commonly found in plastic wraps and containers, reduce testosterone production by interfering with hormone synthesis pathways.

- **Artificial sweeteners hamper your endocrine system —** Sucralose and aspartame, often marketed as healthier alternatives to refined sugar, were also highlighted. Despite their calorie-free label, these products indirectly alter insulin signaling and fat storage processes by confusing your body's natural metabolic responses:[10]

  > *"ASs [artificial sweeteners] may influence the composition and function of the gut microbiota, which plays a vivid role in various aspects of health, including metabolism and hormonal regulation. ASs influence the gut microbiota and could potentially impact the production and metabolism of hormones, which directly and indirectly act as EDCs."*

- **EDCs compete with your natural hormones for space —** One harmful mechanism involved in these additives is displacing hormones from proteins that normally carry them through your bloodstream. Typically, hormones like estrogen and testosterone are bound to proteins, which regulate their release into cells. When EDCs interfere, hormones circulate freely and excessively, overstimulating or desensitizing receptors in your tissues:[11]

  > *"Phthalates can also affect the metabolism of hormones in the body. They have the potential to compete with natural hormones for binding to carrier proteins in the bloodstream, such as sex hormone-binding globulin (SHBG). By displacing hormones from these binding proteins, phthalates can impact hormone availability and alter hormone signaling."*

Early EDC Exposure Linked to Childhood Obesity and Cognitive Decline

In a meta-analysis published in Nature Reviews Endocrinology, researchers examined how exposure to EDCs during pregnancy and early childhood impacts brain development and body weight in the growth of children. Specifically, the team reviewed numerous studies investigating the connection between prenatal exposure to substances such as BPA, phthalates, triclosan, and perfluoroalkyl substances (PFAS), and the occurrence of childhood obesity and neurological disorders like ADHD and autism.[1][2]

- **EDCs impact childhood cognitive function —** In the studies reviewed, prenatal exposure to BPA and phthalates consistently correlated with negative impacts on brain function. Specifically, children exposed to these chemicals before birth exhibited more frequent attention-deficit/hyperactivity disorder (ADHD) symptoms. Intelligence quotient (IQ) scores also dropped notably.

- **The list of EDCs grows longer —** The review further identified that exposure to per- and polyfluoroalkyl substances (PFAS), **also known as forever chemicals**, significantly increases the risk of obesity in childhood. These substances disrupt how the body regulates fat storage, leading to rapid weight gain even in early infancy. Infants and young children exposed to PFAS showed noticeable patterns of accelerated weight gain, resulting in obesity by school age.

- **Pregnancy is the most vulnerable period —** Exposure during pregnancy, even at relatively low levels, triggered lasting changes in children's metabolism and brain development. After birth, males emerged consistently as more vulnerable to the early-life assaults of EDCs.

- **Physical growth is hampered —** Prenatal exposure to EDCs didn't only affect children mentally — it physically altered their growth patterns:

> *"[F]ive publications from prospective cohort studies report that prenatal PFAS exposure is associated with alterations in infant or child growth, increased adiposity during childhood and adulthood, and higher waist-to-height ratio."*

- **The biological mechanisms behind the damage caused by EDCs —** When EDCs block or alter thyroid hormones, they cause structural changes in the developing brain. These structural disruptions manifest as lower IQ, impaired memory, and attention deficits.

  Another critical pathway highlighted was the chemicals' activation of PPAR-gamma receptors, proteins involved in managing how your body creates and stores fat. Chemicals like perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) overstimulate these receptors, triggering excessive fat cell production and storage.

  As a result, children exposed to these disruptors in utero typically accumulate fat easier, struggle to lose weight as they grow, and face increased risk for metabolic diseases later in life.

Steps to Minimize Your Exposure to EDCs

Since EDCs are everywhere, it's becoming increasingly important to protect yourself from these toxins, especially if you're currently pregnant, or raising a child. Here are six strategies to protect your family's health:

1. **Avoid ultraprocessed foods —** One of the most important things you can do to improve your and your family's overall health is ditching ultraprocessed foods loaded with EDCs in favor of whole, natural foods of organic fruits, vegetables, and grass fed meats.

More importantly, ultraprocessed foods are high in linoleic acid (LA), one of the most ubiquitous toxins in the Western food supply today. In a previous article, LA has been shown to cause mitochondrial dysfunction, raising your risk for chronic disease.

That said, avoiding LA is virtually impossible since it's now ubiquitous. To protect your health, limit your intake to less than 5 grams a day from all sources. If you can get it below 2 grams per day, that's even better. To help you monitor your consumption, download the upcoming Mercola Health Coach app. It contains a feature called the Seed Oil Sleuth, which can help you calculate the LA in your food to a tenth of a gram.

2. **Filter your water —** If you're drinking from bottled water and tap water every day, you're unknowingly consume microplastics that eventually accumulate inside your body. To stop this constant assault, I recommend installing high-quality water filters at the entry point of your water supply, as well as the faucets. Consider bringing refillable water bottles made from glass or stainless steel as well.

3. **Scrutinize the packaging of your food —** In addition to avoiding ultraprocessed ingredients, you also need to pay attention to the actual wrapping of the food you buy. Here's a handy tip — always favor products packaged in glass jars instead of plastic containers.

   In addition, never microwave meals inside plastic containers. If you have leftovers, store them using glass, ceramic, or stainless steel.

4. **Upgrade your kitchenware —** Every slice on a plastic cutting board releases microplastics into your meal. Over weeks and months, you consume countless particles without realizing it. Change your plastic cutting boards to wood or glass varieties. Additionally, replace plastic cooking utensils and nonstick cookware with stainless steel versions.

5. **Opt for natural textiles for your clothes —** Synthetic fabrics like nylon, polyester, or acrylic essentially wrap your body in plastic particles. Moreover, every wash cycle releases tiny plastic fibers that contaminate fresh groundwater sources.

   Transition your wardrobe towards natural alternatives like organic wool, cotton, or linen. If you absolutely need to wear synthetic clothing for certain occasions, reduce how frequently you wash them, and use microfiber-catching laundry bags or filtration devices.

6. **Consider natural progesterone —** EDCs frequently mimic estrogen, disrupting your body's natural hormone balance. Using natural progesterone can directly counteract these effects by restoring hormonal equilibrium. In the next sections, I'll show you how to administer this properly.

How to Use Progesterone

Before you consider using progesterone, it is important to understand that it is not a magic bullet, and that you get the most benefit by implementing a Bioenergetic diet approach that allows you to effectively burn glucose as your primary fuel without backing up electrons in your mitochondria that reduces your energy production. My new book, "Your Guide to Cellular Health: Unlocking the Science of Longevity and Joy," covers this process in great detail.

Once you have dialed in your diet, an effective strategy that can help counteract estrogen excess is to take transmucosal progesterone (i.e., applied to your gums, not oral or transdermal), which is a natural estrogen antagonist. Progesterone is one of only three hormones I believe many adults can benefit from. (The other two are DHEA and pregnenolone.)

I do not recommend transdermal progesterone, as your skin expresses high levels of 5-alpha reductase enzyme, which causes a significant portion of the progesterone you're taking to be irreversibly converted primarily into allopregnanolone and cannot be converted back into progesterone.

Ideal Way to Administer Progesterone

Please note that when progesterone is used transmucosally on your gums as I advise, the FDA believes that somehow converts it into a drug and prohibits any company from advising that on its label. This is why companies promote their progesterone products as "topical."

However, please understand that it is perfectly legal for any physician to recommend an off-label indication for a drug to their patient. In this case, progesterone is a natural hormone and not a drug and is very safe even in high doses. This is unlike synthetic progesterone called progestins that are used by drug companies, but frequently, and incorrectly, referred.

Dr. Ray Peat has done the seminal work in progesterone and probably was the world's greatest expert on progesterone. He wrote his Ph.D. on estrogen in 1982 and spent most of his professional career documenting the need to counteract the dangers of excess estrogen with low-LA diets and transmucosal progesterone supplementation.

He determined that most solvents do not dissolve progesterone well and discovered that vitamin E is the best solvent to optimally provide progesterone in your tissue. Vitamin E also protects you against damage from LA. You just need to be very careful about which vitamin E you use as most supplemental vitamin E on the market is worse than worthless and will cause you harm not benefit.

It is imperative to avoid using any synthetic vitamin E (alpha tocopherol acetate — the acetate indicates that it's synthetic). Natural vitamin E will be labeled "d alpha tocopherol." This is the pure D isomer, which is what your body can use.

There are also other vitamin E isomers, and you want the complete spectrum of tocopherols and tocotrienols, specifically the beta, gamma, and delta types, in the effective D isomer. As an example of an ideal vitamin E, you can look at the label on our vitamin E in our store. You can use any brand that has a similar label.

You can purchase pharmaceutical grade bioidentical progesterone as Progesterone Powder, Bioidentical Micronized Powder, 10 grams for about $40 on many online stores like Amazon. That is nearly a year's supply, depending on the dose you choose.

However, you will need to purchase some small stainless steel measuring spoons as you will need a 1/64 tsp, which is 25 mg and a 1/32 tsp, which is 50 mg. A normal dose is typically 25 to 50 mg and is taken 30 to 60 minutes before bed, as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

If you are a menstruating woman, you should take the progesterone during the luteal phase or the last half of your cycle, which can be determined by starting 10 days after the first day of your period and stopping the progesterone when your period starts.

If you are a male or non-menstruating woman, you can take the progesterone every day for four to six months and then cycle off for one week. The best time of day to take progesterone is 30 to 60 minutes before bed as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

This is what I have been personally doing for over a year with very good results. I am a physician so do not have any problems doing this. If you aren't a physician, you should consult one before using this therapy, as transmucosal progesterone therapy requires a doctor's prescription.

Frequently Asked Questions (FAQs) About Endocrine-Disrupting Chemicals

Q: What are endocrine-disrupting chemicals (EDCs), and why are they harmful?

A: EDCs are substances that interfere with your body’s hormone functions by either mimicking or blocking natural hormones. This interference disrupts your metabolism, mood, appetite, and learning processes, often leading to lifelong health

issues like persistent unhealthy cravings, weight gain, and developmental delays, particularly in children.

Q: Where are EDCs typically found, and how often am I exposed?

A: EDCs are incredibly common in everyday life, especially in ultraprocessed foods, plastics, and clothing. For most people, exposure to these hormone-disrupting chemicals is a daily occurrence through diet and everyday products, making them difficult, but not impossible, to avoid entirely.

Q: How do EDCs affect brain function and eating behavior?

A: Exposure to EDCs, especially early in life, eventually alters your brain's reward pathways — the areas responsible for pleasure and cravings. These chemicals change gene expression in key brain regions, making you favor unhealthy foods more. An animal test model showed that early-life exposure caused male subjects to prefer sugary foods and female subjects to crave fatty foods.

Q: What specific health problems are linked to early exposure to EDCs in children?

A: Early-life exposure to EDCs, particularly during pregnancy, significantly raises the risk of obesity, ADHD, and lower IQ, and autism in children. Boys are particularly vulnerable to cognitive and attention issues caused by prenatal exposure. Physically, children exposed to EDCs tend to gain excess weight rapidly in infancy, increasing their lifelong risk of obesity and related metabolic diseases.

Q: How can I protect myself and my family from harmful exposure to EDCs?

A: Reducing your exposure involves practical lifestyle changes. Start by avoiding ultraprocessed foods, and choose whole, organic foods instead. In addition, eliminate plastic containers and cooking utensils, switch to natural fibers for clothing, and opt for filtered water. Incorporating natural progesterone can also help balance hormones disrupted by plastics and other EDCs.

Sources and References

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