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Toxic Teethers — Be Careful What You Give Your Baby

Analysis by Dr. Joseph Mercola | September 26, 2024

STORY AT-A-GLANCE

- BPA is used to strengthen clear plastics, and is used in water bottles, baby teething toys and as liners in metal food containers to reduce bacterial growth
- Although your baby toy and water bottle are labeled BPA-free, studies show the products do leach endocrine-disrupting chemicals when exposed to environmental stressors, such as water
- Industry-funded research studies claim no negative health effects, while independent research demonstrates exposure during infancy poses serious health risks

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Bisphenol A (BPA) is an industrial grade chemical used in epoxy resins, hard clear plastics and the protective lining of some food and beverage cans. The theory is that the BPA makes the products safer and easier to use, while in fact the chemical has demonstrated significant side effects that damage your health.

Although it was first discovered in the 1890s, it wasn't until the 1950s that chemists found it could be added to polycarbonate plastics to make them stronger and more resilient.[1] Although exposure to BPA has demonstrable effects on the brain, behavior, increased blood pressure[2] and fetal and infant development, the FDA continues to say it is safe in low doses.[3]

Unfortunately, as BPA is found in multiple products in your home, such as food containers, baby toys, plastic bottles and containers, acquiring only "very low" doses

may be a challenge. Added to which, being labeled BPA-free does not necessarily mean the product does not release BPA or substitute endocrine-disrupting chemicals used to strengthen plastics.

Does 'BPA-Free' Mean Your Baby's Toy Is Devoid of BPA?

Although plastics appear to be inert, taking many years to decay or erode, they are in fact leaching chemicals into your environment every day.

A 2011 study in Environmental Health Perspectives found products claiming to have estrogenic-activity free plastics still leached chemicals with estrogenic activity into food products when placed under common stresses.[4]

In a study published in the Journal of the American Chemical Society, researchers investigated whether BPA and other endocrine-disrupting chemicals are leaching from teethers — toys babies use to soothe their gums as their teeth are erupting.[5]

As a result of studies demonstrating **endocrine-disrupting chemicals like BPA** trigger diseases in humans and animals, the European Union restricted their use in baby bottles.

The U.S. followed in 2012, restricting use in baby bottles and toddler sippy cups. However, few studies have evaluated teething toys used by infants and the potential for endocrine-disrupting chemicals leaching from these products.

The researchers evaluated 59 different teething toys purchased online in the U.S. and found that although most were labeled BPA-free or nontoxic, all contained BPA, along with a range of different parabens and antimicrobials such as triclosan,[6] and these chemicals were in fact leaching out of the product.

The plastics industry has claimed the amount of **chemicals used in infant and child products** does not pose a health risk to children.

However, according to lead researcher Kurunthachalam Kannan, Ph.D., scientist at the New York State Department of Health, studies suggest that just a nanogram (ng) level is harmful to your child's health.[7]

Controversy Fueled by Industry-Funded Research

To simulate use, researchers immersed the plastic teething toys in water for an hour and then measured the amount of chemicals that leached into the water.

However, water is much less corrosive than enzyme-filled saliva, so the amount of chemicals measured could be very conservative. **Parabens** were the most commonly leached chemical in this part of the study.[8]

Kannan noted that the levels measured from one hour of soaking in water were lower than current limits set for other products. However, these limits were not specifically set for babies and could not account for the accumulation of chemicals in a baby's body from exposure to several products.[9]

Although use of BPA and other endocrine-disrupting chemicals have been restricted in Europe, China and Canada, there continues to be an argument in the U.S. over whether exposure to these chemicals is dangerous enough to warrant restricting use and cutting industry profits.

The FDA continues to assure the public that current levels of BPA in food containers and packaging are safe,[10] citing their 2014 report using research from 2009 to July 2013.[11]

However, research in rodents, published within their review dates, demonstrate that even low-dose exposures have a negative effect, and levels similar to humans in rhesus monkeys have a negative effect on reproduction.[12]

The differences between study results may be explained by a review of the literature, which found every industry-funded study to that point had found no negative health effects of BPA on humans, while 92% of studies not funded by the industry did find negative health effects.[13]

Early Exposure Is Serious Business

Early life exposure to any chemical or toxin dangerous to human health is even more serious in infants and children. Since a child's body is not fully developed, chemicals have a greater potential for impacting their neurological, digestive and immune systems.

While Kannan hopes these findings will guide regulation guidelines to protect young children, it is interesting to note the move to restrict BPA in children's bottles and sippy cups in 2012 was reportedly since the chemical was no longer necessary as an additive.[14] Kannan commented:[15]

> *"Putting this cocktail of chemicals, even in low amounts, during critical stages of development of many organs, can have an effect in many stages of life.*
>
> *That's why we're concerned about it — the early-life exposure and epigenetic changes that results from the EDCs [endocrine-disrupting chemicals] can contribute to some of the disease and development of some of these diseases later in life. We should have policies limiting exposure."*

The earliest exposure happens prior to birth. One study found that women with high exposure to BPA had **higher rates of miscarriage**.[16] Studies of women undertaking fertility procedures to achieve pregnancy revealed higher levels of BPA resulted in proportionally lower egg production.[17,18]

Research also demonstrates that men with higher levels of BPA experience lower sperm concentration and low sperm count.[19] Occupational exposure in men also appeared to result in lower satisfaction with their sex life and increased difficulty achieving an erection.[20]

Many studies have also demonstrated that babies born to women exposed to BPA at work weigh up to a half-pound less than those born to women who were not exposed at work.[21] Low birth weight increases the risks of birth defects, infections and long-term chronic health conditions, such as **obesity**, diabetes, **high blood pressure** and heart, lung and **kidney problems**.[22]

Effects of Endocrine Disruptors

BPA and the common replacement chemicals bisphenol S and bisphenol F are endocrine-disrupting chemicals (EDCs) that wreak havoc on both children and adults.

As the name implies, these chemicals have the ability to disrupt your endocrine system, which produces and secretes hormones that affect almost every cell, organ and function in your body. They are also called xenoestrogens, as they activate estrogen receptors.

Hormones are instrumental in regulating mood, growth and development, tissue function and metabolism, as well as sexual function and reproductive processes. **BPA has been linked to a number of health concerns**, particularly in pregnant women, fetuses and young children, but also in adults, including:

Structural damage to your brain	Changes in gender-specific behavior, and abnormal sexual behavior
Hyperactivity, increased aggressiveness and impaired learning	Early puberty, stimulation of mammary gland development, disrupted reproductive cycles, ovarian dysfunction and infertility[23]
Increased fat formation and risk of obesity and diabetes	Stimulation of prostate cancer cells
Altered immune function	Increased prostate size and decreased sperm production[24]
Increased risk of high blood pressure and heart disease[25]	Breast cancer[26]
Preterm birth[27]	Reduced efficacy of chemotherapy treatment[28]

Healthier Options for Your Family

Although canned goods and baby toys are a significant source of BPA and other EDCs for your family, they are not the only ones. In this short news video Dr. David Agus, professor of medicine and engineering at the University of Southern California, describes where you'll find BPA on your grocery store shelves. Limit your exposure by keeping the following guidelines in mind when shopping for baby toys, food and other home products.

Unfinished wooden teething toys don't have the chemicals but may not hold the same appeal to your infant.[29]	Opt for organic cloth teething toys, dyed with vegetable or metal-free dyes.[30]
Breastfeed your baby exclusively if possible, for at least the first year (to avoid EDC exposure from infant formula packaging and plastic bottles/nipples).	If bottle-feeding, use glass baby bottles rather than plastic.
Eat mostly fresh whole foods, especially if you're making your baby food. **Processed and packaged foods** are a common source of BPA and phthalates — particularly cans, but also foods packaged in plastic wrap.	Store your food and beverages in glass rather than plastic, and avoid using plastic wrap.
Use glass containers if heating food in your microwave, as heat tends to increase the release of chemicals from plastic.	Be aware that even "BPA-free" plastics typically leach other endocrine-disrupting chemicals that are just as bad as BPA. Look for products made by companies that are earth-friendly, animal-friendly, sustainable, certified organic and GMO-free.

Buy products that come in glass bottles rather than plastic or cans.	Check your home's tap water for contaminants and filter the water if necessary.
Teach your children not to drink water from the garden hose to avoid plastic chemicals.	Be careful with cash register receipts. If you use a store regularly, encourage the management to switch to BPA-free receipts.

In addition, you can also use progesterone to counter xenoestrogen exposure. One of the best ways to do this is with transmucosal progesterone, mixed with vitamin E, as described below.

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” comes out very soon and 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 four hormones I believe many adults can benefit from. (The other three are thyroid hormone T3, 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 like Health Natura promotes 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 25-50 mg and is taken 30 minutes before bed, as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

Unfortunately, this vendor frequently runs out of product, and if that's the case, then you can use **Simply Progesterone by Health Natura**. It's premixed with vitamin E and MCT oil. Again, while Health Natura states that its product is for "topical use only," I recommend applying it transmucosally, by rubbing it on your gums.

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 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.

Sources and References

- [1] Authority Nutrition, What Is BPA and Why Is It Bad for You? (Archived)
- [2] Hypertension, 2015;65(2):313-319
- [3] U.S. Food and Drug Administration, November 2014, Bisphenol A (BPA): Use in Food Contact Application
- [4] Environmental Health Perspectives, 2011;119(7):989
- [5, 6, 7] American Chemical Society, December 2016, Baby teethers soothe, but many contain low levels of BPA

- [8, 14, 15] Fox News, 2016, Baby teethers may contain low levels of BPA, study finds
- [9] CBS News, December 2016, Baby teether study finds many contain potentially harmful chemicals
- [10] US Food and Drug Administration, February 2016, Questions & Answers on Bisphenol A (BPA) Use in Food Contact Applications
- [11] US Food and Drug Administration, June 2014, 2014 Updated safety assessment of Bisphenol A (BPA) for use in food contact applications
- [12] Proceedings of the National Academy of Sciences of the United States of America, 2012;109(43):17525-30
- [13] Environmental Research, 2006;100(1):50-76
- [16] Human Reproduction, 2005;20(8):2325-2329
- [17] Environmental Health Perspectives, 2012;120(7):978-983
- [18] International Journal of Andrology, 2010;33(2):385-393
- [19, 24] Fertility and Sterility 2011;95(2):625-630
- [20] Human Reproduction 2010;25(2):519-527
- [21] Reproductive Toxicology, 2011;32(1):64-68
- [22] March of Dimes, Low Birthweight (Archived)
- [23] New York Times, August 2014, In plastics and Cans, a Threat to Women
- [25] Hypertension, December 2014, Exposure to Bisphenol A from Drinking Canned Beverage Increases Blood Pressure
- [26, 28] Medical News Today, September 2014, What Is BPA (bisphenol A)? Is BPA Harmful?
- [27] Time, March 2016, BPA Linked to Premature Babies: Study
- [29, 30] Gimme the Good Stuff, Safe Teether Guide