

Bisphenol A

What is Bisphenol A?

A CHEMICAL IN PLASTICS AND RESINS

Bisphenol A, or BPA, is an industrial chemical added to polycarbonate plastics in order to make them more rigid. It is also used in the protective lining on some metal food and beverage cans and in thermal receipt paper.

How are we exposed to BPA?

FOODS, PLASTICS, RECEIPTS

- BPA can be ingested after it seeps into foods and beverages from plastic containers and from the lining of cans. This is more likely to occur when these containers are exposed to heat and acidic contents.
- BPA can be absorbed through the skin following handling of cash register receipts.
- Exposure can occur from the use of certain medical devices and dental sealants that contain BPA.

What are the health effects of BPA?

HORMONE INTERFERENCE, BEHAVIOR, AND OBESITY

BPA is an endocrine disruptor, meaning it is a chemical that may interfere with the hormone system to affect health in many ways. Children are more vulnerable to exposure to BPA than adults because their organ systems are still developing, they put their hands and objects in their mouths, and they have less varied diets.

- **Behavioral Issues:** Children's exposure to BPA may alter brain development and lead to behavioral problems such as hyperactivity and reduced attention.
- **Hormone Disruption:** Exposure to BPA has been shown to interfere with estrogen, testosterone, and thyroid hormone.
- Chronic Diseases: BPA may contribute to the development of obesity, diabetes, and heart disease.

How can I reduce my exposure to BPA?

- Use glass to heat and store food and avoid plastic containers.
- Use stainless steel or glass water bottles.
- Choose fresh fruits and vegetables and avoid canned goods.
- Avoid plastics with a #7 recycling symbol or labeled "PC" (polycarbonate).
- Look for toys and children's food/beverage containers labeled "BPA free."
- Choose e-receipts and minimize handling of cash register receipts.

Be a cautious consumer!

As BPA is being phased out of some products due to health concerns, Bisphenol S (BPS) and Bisphenol F (BPF) are being used as replacements. Evidence suggests that BPS and BPF also interfere with the hormone system. To protect your family, it is best to avoid plastic goods and use glass or stainless steel food and beverage containers.

Additional Resources

Barrett ES, Sathyanarayana S, Mbowe O, Thurston SW, Redmon JB, Nguyen RHN, Swan SH.First-Trimester Urinary Bisphenol A Concentration in Relation to Anogenital Distance, an Androgen-Sensitive Measure of Reproductive Development, in Infant Girls. Environ Health Perspect. 2017 Jul 11;125(7):077008. doi: 10.1289/EHP875.

Evans SF, Kobrosly RW, Barrett ES, Thurston SW, Calafat AM, Weiss B, Stahlhut R, Yolton K, Swan SH. Prenatal bisphenol A exposure and maternally reported behavior in boys and girls. Neurotoxicology. 2014 Dec;45:91-9. doi: 10.1016/j.neuro.2014.10.003.

Gore AC, Chappell VA, Fenton SE, Flaws JA, Nadal A, Prins GS, Toppari J, Zoeller RT. EDC-2: The Endocrine Society's Second Scientific Statement on Endocrine-Disrupting Chemicals. Endocr Rev. 2015 Dec;36(6):E1-E150. doi: 10.1210/er.2015-1010.

Mervish N, McGovern KJ, Teitelbaum SL, Pinney SM, Windham GC, Biro FM, Kushi LH, Silva MJ, Ye X, Calafat AM, Wolff MS; BCERP. Dietary predictors of urinary environmental biomarkers in young girls, BCERP, 2004-7. Environ Res. 2014 Aug;133:12-9. doi: 10.1016/j.envres.2014.04.040. Epub 2014 Jun 3.

Rochester JR, Bolden AL. Bisphenol S and F: A Systematic Review and Comparison of the Hormonal Activity of Bisphenol A Substitutes. Environ Health Perspect. 2015 Jul;123(7):643-50. doi: 10.1289/ehp.1408989.

Stacy SL, Eliot M, Calafat AM, Chen A, Lanphear BP, Hauser R, Papandonatos GD, Sathyanarayana S, Ye X, Yolton K, Braun JM. Patterns, Variability, and Predictors of Urinary Bisphenol A Concentrations During Childhood. Environ Sci Technol. 2016 Jun 7;50(11):5981-90. doi: 10.1021/acs.est.6b00794.

Wassenaar PNH, Trasande L, Legler J. Systematic Review and Meta-Analysis of Early-Life Exposure to Bisphenol A and Obesity-Related Outcomes in Rodents. Environ Health Perspect. 2017 Oct 5;125(10):106001. doi: 10.1289/EHP1233

http://tceee.icahn.mssm.edu/wp-content/uploads/sites/11/2015/08/PEHSU-Reg-2-and-10_Dental-Sealants-and-BPA-factsheet.pdf

(Revised: November 2017)







