

THE HEALTH NUGGET



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Plague of the Plastics

Lurking in the North Pacific Ocean lies an enormous monster of the sea. While no fang-toothed, long-tailed leviathan, this monster's body is composed of floating trash that is said to encompass an area twice the size of Texas. Eighty percent of this garbage patch consists of the lightest, most versatile, convenient, cheapest, and most ubiquitous material today. We refer to this non-biodegradable substance as plastic.

The North Pacific Gyre, where ocean currents trap the floating trash, is described as plastic soup. Plastic bags, ropes, bottles and the like are found there, but even more deadly is the plastic that has been broken down into miniscule fragments, plankton size. One dissected sea bird contained 1,603 pieces of plastic such as colored bottle caps. But who knows how much of the plankton-sized plastic fish and whale are taking in.

As tragic as this out of control waste is, plastic's impact on our internal environment is worse. Our intake of plastic toxins is far more than we realize. Plastic is a petroleum-based mix that is supplemented with additional chemicals to achieve suppleness, inflammability, and other desired qualities. Unfortunately, research is just beginning to unveil how these chemicals interact with our own biochemistry.

Absorbed, inhaled, and ingested into the human body, chemicals from plastics have been found to mimic our own hormones and interfere with the regular function of the delicately balanced endocrine system. This system includes the hormones and glands that affect virtually every function, organ, and cell of our body. By moving into the nucleus of a

receptor cell, these chemicals disrupt the cell's growth and division. Foreign synthetic estrogens have been labeled xenoestrogens, and they don't belong inside of us. They can be found in pesticides, cosmetics, preservatives, household cleaners, baby clothes, and diapers, as well as various plastics.

BPA, or bisphenol A, is a known xenoestrogen. It is found in hard plastics and has been shown to leach out of polycarbonate plastic containers, such as innocent-looking water and baby bottles, into the liquids they hold. Frederick Vom Saal, Ph.D., a professor at the University of Missouri at Columbia who specifically studies estrogenic chemicals in plastics, warns parents to "steer clear of polycarbonate baby bottles. They're particularly dangerous for newborns, whose brains, immune systems, and gonads are still developing."¹

In the ocean, male fish and sea gulls have sprouted female sex organs due to xenoestrogens. In humans, the effects of synthetic hormones run the gamut from declining fertility rates, lowered sperm count to cancer. Even before we are born "very low doses, can cause irreversible damage in an unborn baby's reproductive organs" according to Marc Goldstein, M.D., director of the Cornell Institute for Reproductive Medicine.² According to The National Toxicology Program, there is "limited evidence" that BPA has adverse effects on development and that "there is some concern for neural and behavioral effects in fetuses, infants, and children at current human exposures."³

Men, facing issues of decreasing sperm counts, lowered testosterone levels, and increasing prostate cancer rates, need to be aware of environmental

excess estrogen exposure. BPA has been found to stimulate prostate cancer cell proliferation.⁴ Vom Saal states, “We now know that BPA causes prostate cancer in mice and rats, and abnormalities in the prostate’s stem cell, which is the cell implicated in human prostate cancer.”⁵

At Tufts University, Ana M. Soto, M.D., a professor of anatomy and cellular biology, has found connections between these chemicals and breast cancer. This connection is no small matter. Breast cancer is a leading cause of death in women and has been on the rise over the last 50 years. In the 1960s, organochlorine pesticides were found to cause breast cancer in rats. It was also seen that these organochlorines concentrate in fat tissue. “As early as 1981, one research study concluded that organochlorine pesticides ‘might be considered possible contributors to the high incidence of breast cancer among women.’”⁶ Unfortunately these organochlorines are also found in some plastics.

Xenoestrogens can also make us fat. Even low doses of BPA have been shown to create new fat cells and increase their size. Apparently there is more to the picture than calorie intake and calorie expenditure.

Reported in the *Journal of the American Medical Association*, higher concentrations of BPA in the urine has been associated with a 300% greater risk of cardiovascular disease, and a 240% greater risk of diabetes, and abnormalities in liver enzymes.⁷ With more than 6 billion pounds of BPA being produced in the world every year and one-third of it comes from our own nation, it is a difficult substance to escape. The U.S. Centers for Disease Control found that 95% of Americans have BPA in their urine. It has been found in nearly every human who has been tested in the United States. Thankfully, public concern is moving companies to remove BPA from their drinking bottles. Canada has already outlawed BPA as a health risk and environmental contaminant.



Also residing in plastics are phthalates. Phthalates allow medical tubing to bend, pacifiers to skwoosh in the mouth, rubber duckies to quack, shower curtains to fold, and they keep plastic food containers from cracking. California recently listed them as a chemical known to be toxic to our reproductive systems and has also been linked to cancer.

Green architect and designer William McDonough, has observed that in the United States it’s commonly accepted that children’s teething rings, cosmetics, food wrappers, cars, and textiles will be made from toxic materials. He asks, “What kind of people are we that we would design like this?”⁸

What kind of people? Do you really want to know? We’re the monsters. So focused on ease, personal convenience, and self, we give little thought to the results of our actions. The apostle Peter, after speaking of God cleansing the world with fire of all its pollution, asks this; “What kind of people ought you to be?” (2 Peter 3:11, NIV). I’d say you ought to be a Christian, a born-again child of God. You ought to accept the gift of salvation so dearly purchased for you. For all who accept and live what God has done for them, He has promised to make all things new—including me and you.

¹ Casey, Susan. “Our Oceans Are Turning Into Plastic...Are We?” *Best Life*. Nov. 2006, p. 3. http://www.bestlifeonline.com/cms/publish/health-fitness/Our_oceans_are_turning_into_plastic_are_we_2_3.shtml.

² *Ibid.*, p. 3.

³ Iannelli M.D., Vincent. “Chemicals in Your Child’s Environment.” *About.com:Pediatrics*. May 27, 2008. http://pediatrics.about.com/od/hiddendangers/a/0108_env_chmcls.htm.

⁴ Wetherill, Yelena. Fisher, Nicola.... “Xenoestrogen Action in Prostate Cancer Patients.” *Cancer Research* 65, 54-65, January 1, 2005. <http://cancerres.aacrjournals.org/cgi/content/abstract/65/1/54>.

⁵ Casey, Susan. “Our Oceans Are Turning Into Plastic...Are We?” *Best Life*. Nov. 2006, p. 3. http://www.bestlifeonline.com/cms/publish/health-fitness/Our_oceans_are_turning_into_plastic_are_we_2_3.shtml.

⁶ Hansen, M.D., Richard. “Xenoestrogens, Soy and Breast Cancer Risk.” <http://www.emeraldwellness.com/article.php?id=70>

⁷ Michaels, Jillian. *Master Your Metabolism*. Crown Publishers, New York, p. 73. *JAMA*. 2008;300(11):1303-1310.

⁸ Casey, Susan. “Our Oceans Are Turning Into Plastic...Are We?” *Best Life*. Oct. 2007. http://www.bestlifeonline.com/cms/publish/health/Our_oceans_are_turning_into_plastic_are_we_2_printer.php.