FOR DOCTORS AND SCIENTISTS

2017

INTEGRATIVE
ENVIRONMENTAL MEDICINE

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FOR THE GENERAL PUBLIC

2020

Non-Toxic
Guide to Living Healthy in a Chemical World

Aly Cohen, MD
Frederick S. vom Saal, PhD
Thyroxine ($T_4$) – Thyroid hormone

Thyroid hormone disrupting chemicals: Dioxin and Chemicals in Flame Retardants

Tetrabromobisphenol A (TB-BPA)

Polybrominated diphenyl ethers (PBDEs) (209 Congeners)

Tetrachlorodibenzo-p-dioxin (TCDD)

Polychlorinated Biphenyls (PCBs) (209 Congeners)
VULNERABLE PERIODS IN LIFE TO ENDOCRINE DISRUPTING CHEMICALS

(Not just *what*, but *when*)

- Prenatal
- Neonatal
- Puberty
- Pregnancy
- Menopause
Chemicals Are All Around Us

- Televisions, computers, tablets are treated with flame retardants
- Furniture and carpets are coated with stain guards, water-proofing
- Food containers can contain plasticizers (DEHP and BPA)
- Plastic toys are molded from polyvinyl chloride (PVC)
- Bathrooms are filled with chemical-laden cosmetics and personal care products
- Drinking water has been found to have many contaminants, such as metals, medications, and industrial chemicals
- Food is “engineered” with preservatives, coloring, and synthetic flavors
- Air fresheners, synthetic fragrances, and engine fumes waft through the air
Disruption Among Us

Known endocrine disrupting chemicals are added to plastics to create household goods

Flame retardants
- Electronic casings
- Furniture

BPA
- Auto interiors
- Plastic toys

PFAS
- Carpets
- Food packaging
- Auto interiors
- Outdoor gear

Phthalates
- Personal care products
- Food packaging

#DrillingForDisruption
Ingredients: Corn flour blend (whole grain yellow corn flour, degemrinated yellow corn flour), sugar, wheat flour, whole grain oat flour, modified food starch, contains 2% or less of hydrogenated vegetable oil (coconut, soybean and/or cottonseed), oat fiber, salt, soluble corn fiber, natural flavor, red 40, turmeric extract color, blue 1, yellow 6, annatto extract color, BHT for freshness.

Vitamins and Minerals: Vitamin C (sodium ascorbate and ascorbic acid), niacinamide, reduced iron, zinc oxide, vitamin B6 (pyridoxine hydrochloride), vitamin B2 (riboflavin), vitamin B1 (thiamin hydrochloride), vitamin A palmitate, folic acid, vitamin B12, vitamin D3.

CONTAINS WHEAT INGREDIENTS. CORN USED IN THIS PRODUCT MAY CONTAIN TRACES OF SOYBEANS.
FOOD AND DRUG ADMINISTRATION (US-FDA)

DRUGS: The FDA requires studies to assess both the safety and efficacy of drugs prior to use.

FOOD: Chemicals in processed food are typically not tested for health effects.

Approved by FDA as GRAS: Generally Regarded As Safe

1. No studies of health effects.
2. Until proven to cause human harm, chemicals are presumed to be safe.

Thousands of chemicals in processed food have never been tested for health effects.
Um... we do test for the safety of plastics in your food.

It's kind of a long-term test.
Water Contamination

• Infectious Contaminants
  • Bacteria
  • Viruses
    • ?coronavirus
• Aging infrastructure/water pipes (lead)
• Agricultural run-off
  • Fertilizers (nitrates)
  • Pesticides
  • Fecal waste
• Medications
• Radionucleotides
  • Radon
  • Other nucleotides

• Industrial chemicals
  • Microplastics
  • PFOA/PFOS
  • Flame retardants
  • Heavy metals
  • Coal ash
  • Biosolid
  • Perchlorate (rocket fuel)
  • Legacy pesticides
  • Plasticizers
  • Cleaning products/personal care products
  • Hydraulic fracking
  • Storm/hurricane run-off
  • Major chemical spills (pipeline leaks, fires, chemical spills)

• Air pollution
• Bioterrorism/water security/climate change
Endocrine Disrupting Chemicals Contaminate Water

How Contaminants Get Into Our Water Supply

Copyright, Non-Toxic: Guide to Living Healthy in a Chemical World, Oxford University Press, 2020
10 Endocrine Disrupting Chemicals and Effects

**Bisphenols** (BPA) - disrupts development, immune, reproduction, brain, metabolic systems

**Phthalates** (DEHP) - disrupts development, reproduction, metabolic systems

**DDT** - disrupts development, reproduction, brain, metabolic systems

**Flame retardants** - disrupt development, brain

**PCBs** (Polychlorinated biphenyls) - disrupt development, brain

**PFAS** (perfluorinated chemicals) - immunotoxicity, fertility, testicular, liver, thyroid disease

**PAHs** (Polycyclic aromatic hydrocarbons) – cardiovascular disease

**TBT** (Tributyltin) - disrupts development, metabolic systems

**Perchlorate** – disrupts development, brain

**Antimicrobials** (triclosan) – Immune system disruption
Endocrine Disrupting Chemicals, Inflammation and Diseases
Course of COVID-19 Infection

Stage 1: Asymptomatic
Stage 2: Non-severe Symptomatic
Stage 3: Severe Respiratory-Inflammatory

Viral Response Phase

Time Course

Severity of Illness

Hyperinflammatory Phase
Cytokine Storm
Top 12 Recommended Life-Style Changes

- Reduce canned food
- No more non-stick or stain guard anything
- No more plastic for storage & microwave use
- Create a healthy water “system”
- Dust/mop/vacuum much more
- No more creams, lotions, shampoos, deodorants....with unknown fragrances and other ingredients
- Reduce foods with pesticides, coloring, preservatives or GMO
- Avoid carpet cleaners/Scotch Guard/cleaning products with toxic chemicals
- Avoid exhaust/air-fresheners/gasoline fumes/synthetic fragrances
- Understand your medications
- Promote quality sleep, reduce stress, and increase exercise
- Limit radiation exposure whenever possible
Lifestyle Changes to Reduce Inflammation

- Diet
- Exercise
- Sleep hygiene
- Stress management
- Smoking/vaping cessation
- Limit medication/USE appropriate medication
- Limit harmful chemical exposures
- Appropriate use of supplements
Nutrients

When humans are nutrient sufficient, they are better equipped to handle toxin exposure.
Cruciferous Vegetables

- Cabbage
- Chinese cabbage
- Broccoli
- Kohlrabi
- Brussels sprouts
- Turnip greens
- Mustard greens
- Collard greens
- Watercress
- Land cress
- Shepherd’s purse
- Cauliflower
- Bok choy
- Kale
- Daikon radish
- Oriental radish
- Horseradish
- Arugula
- Wasabi
- Rutabaga
- Turnip
Important Supplements
(vitamins, minerals, anti-oxidants)

• Folate B9 (reduced methylation)
• Vitamin D3 (400+ immune effects)
• Zinc
• Curcumin
• Vitamin C
• Quercetin (PCBs, methylmercury)
• B3
• Selenium (neuroprotection)

• Probiotics
• Fatty acids
• Vitamin A
• N-acetylcysteine (NAC)
• Melatonin (antioxidant)
• Green tea (epigallocatechin gallate (EGCG))
• Iodine (thyroid protection)
Non-Toxic Take Home Messages

• Chemicals are ubiquitous
• There is minimal oversight from U.S. laws
• Chemicals get absorbed through skin, lungs, GI tract, vaginal mucosa...and they cross the placenta
• There are long-term health issues from low levels of exposures over time.... AND during critical periods of human development!
• Exposure to EMF radiation, medications, stress, noise pollution e.g. can also pose health risks
• Body awareness and making smart choices to reduce body burden are key!
• Many vetted resources DO exist!
Resources

• Environmental Working Group (EWG) www.ewg.org
• EWG’s Skin Deep Database www.ewg.org/skindeep
• Because/Health www.becausehealth.org
• Green Science Policy Institute greensciencepolicy.org
• Environmental Defence environmentaldefence.ca
• Natural Resources Defense Council www.nrdc.org
• Environmental Health News www.ehn.org
• Collaborative on Health and the Environment (CHE) www.healthandenvironment.org
• Healthy Environment and Endocrine Disruptor Strategies (HEEDS) heeds.org
• Environmental Protection Agency www.epa.gov
• Pediatric Environmental Health Speciality Units (PEHSU) www.pehsu.net
• Health Care Without Harm noharm.org
• Centers for Disease Control and Prevention www.cdc.gov
• Environmental Health Trust: www.EHTrust.org
• Electromagnetic Radiation Safety: www.saferemr.com
• Consumer Reports Greener Choices www.greenerchoices.org
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