

Living Healthy in a Chemical World



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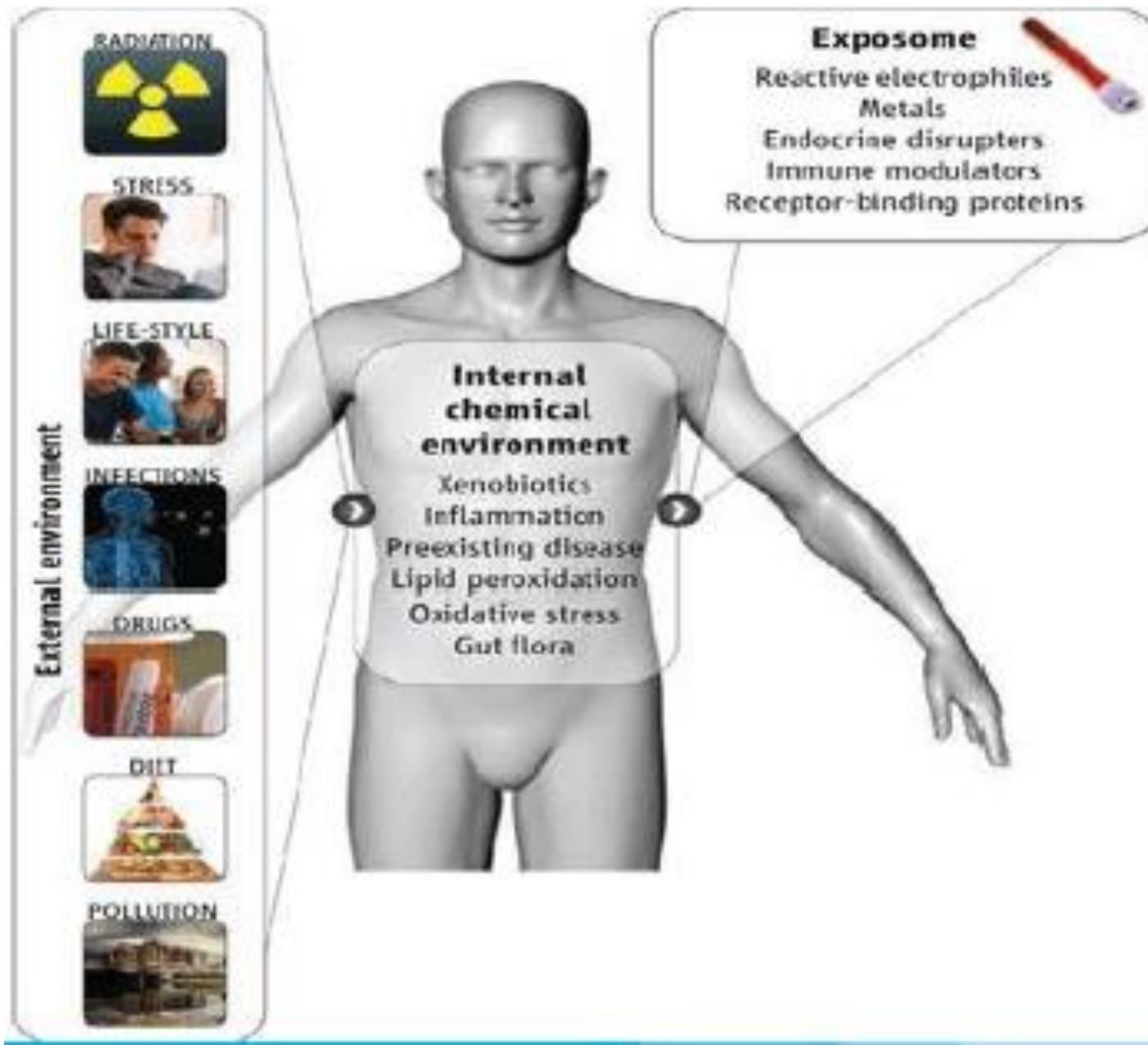
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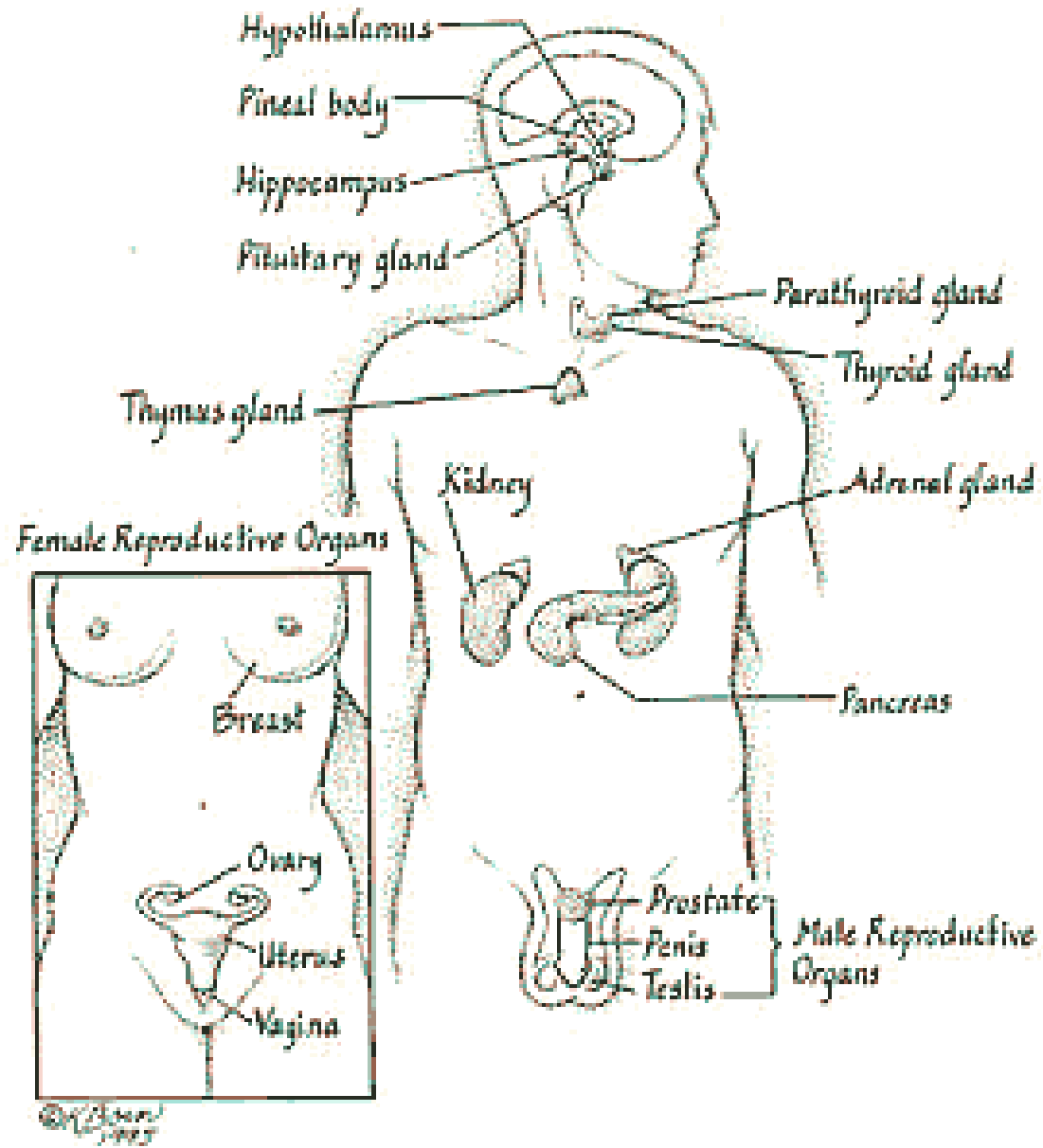


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Children...uniquely vulnerable

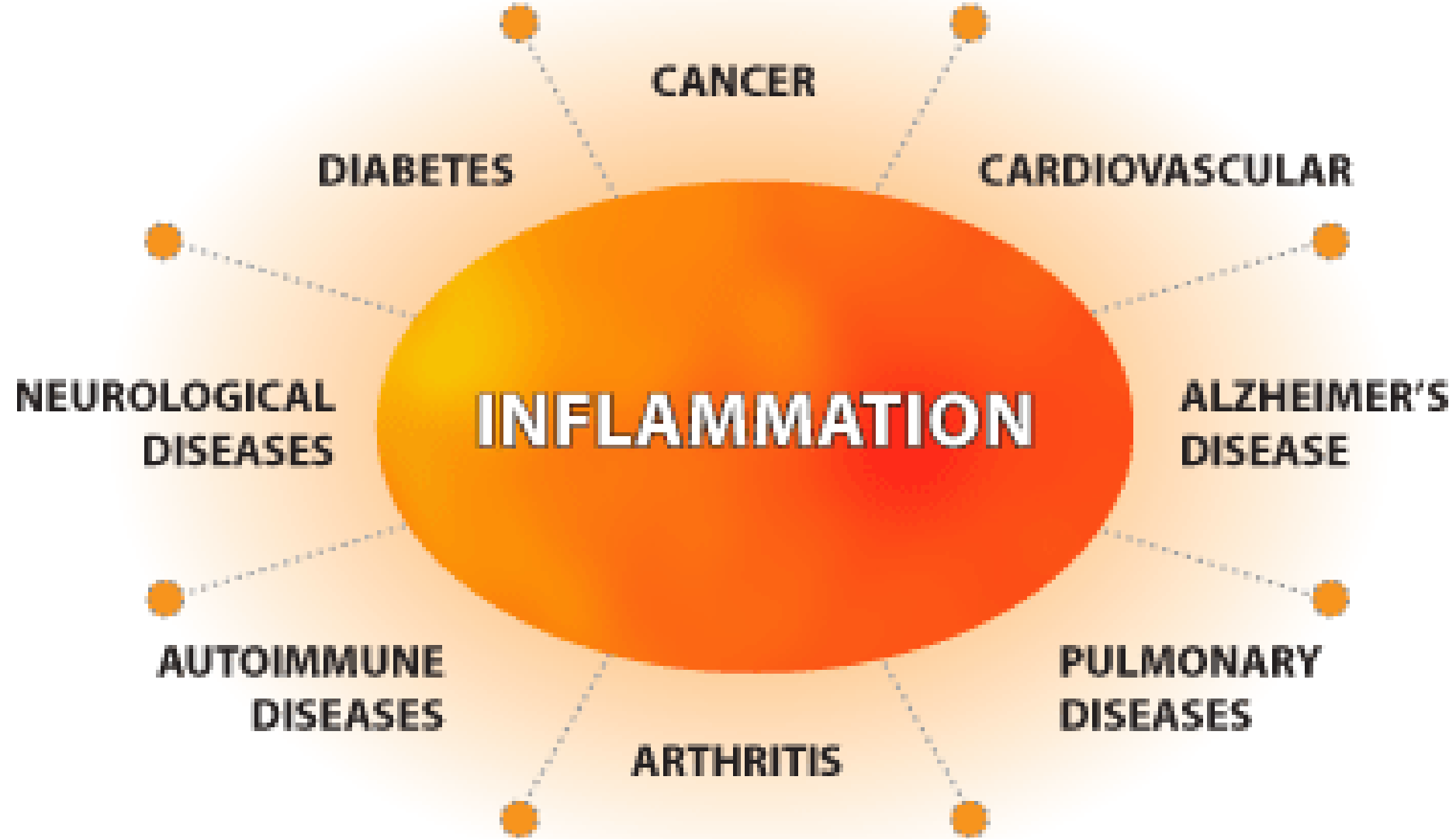
- Pound-for-pound, greater exposure
- Close to the ground
- Hand-to-mouth behavior
- Lack of variety in diet
- Immature metabolism
- Continuously developing
 - Reproductive system
 - Nervous system
- More years of future life



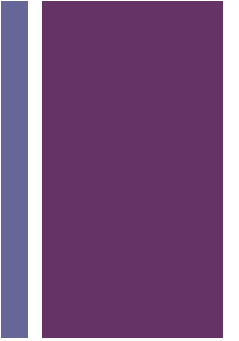
Periods of Susceptibility (Not just *what*, but *when*)







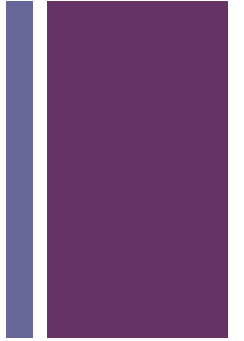
+ Autoimmune Disease (AID)



- Over 80 known
- Involve every human organ & cell type
- Epidemic rise in dozens of AID
- 3-10x greater in women than men
- Many factors AND mechanisms associated with disease risk and development



The Four A's of Environmental Health



- **Assess** – where are toxic chemicals coming from?
- **Avoid or swap** – can I reduce my product use and/or swap for safer, less toxic versions
- **Add** – nutrients, clean drinking water, exercise/sweat, stress reduction, sleep, evidence-based supplements
- **Allow** – Be kind to yourself! Life is full of things you can't control... 80/20 rule, quality of life... it's a journey for everyone!



Diet



The U.S. Diet

- Estimated that 75% of the Western diet consists of processed food
- Each person consumes **8-10 pounds** of food additives per year
 - Coloring
 - Flavoring
 - Preservatives
 - Additives for “Mouth feel”
 - Antibiotics
 - Nutrients: Vitamin E and C, DHA





Toxicity In Our Diet



■ ***What we cook***

- Food additives
- Organic vs. natural
- Nutrient quality/quantity
- Protein, carbs, fats, sugars

■ ***How we clean it***

- Soap vs. vinegar vs. vegetable cleaner
- Water quality

■ ***How we cook it***

- Grill, fry, steam, raw, microwave
- Plastic utensils
- Water quality
- Olive oil, vegetable oil, PAM
- Non-stick pans

■ ***How we store it***

- Glass, plastic, stainless steel, styrofoam
- Canned vs. frozen vs. Tetra-Pak
- Saran wrap vs. foil



Organic vs. Conventional



Dirty Dozen & Clean Fifteen



EWG's 2026 DIRTY DOZEN™

- | | |
|-----------------------------------|----------------------|
| 1. Spinach | 8. Apples |
| 2. Kale, collard & mustard greens | 9. Blackberries |
| 3. Strawberries | 10. Pears |
| 4. Grapes | 11. Potatoes |
| 5. Nectarines | 12. Blueberries |
| 6. Peaches | + Green beans |
| 7. Cherries | + Bell & hot peppers |



EWG's 2026 CLEAN FIFTEEN™

- | | |
|---------------|----------------|
| 1. Pineapple | 9. Cauliflower |
| 2. Sweet corn | 10. Watermelon |
| 3. Avocados | 11. Mangoes |
| 4. Papaya | 12. Bananas |
| 5. Onions | 13. Carrots |
| 6. Sweet peas | 14. Mushrooms |
| 7. Asparagus | 15. Kiwi |
| 8. Cabbage | |



Nutrients that ***Combat*** Genetic Effects

- Green leafy vegetables have folate or vitamin B9 - BPA
- Iodine - nitrate, thiocyanate and perchlorate
- Iron, calcium, vitamin C – lead
- Quercetin – PCBs, methylmercury
- Omega-3 poly-unsaturated fatty acids – BPA, lead, mercury, dioxin
- Selenium - heavy metals

Cruciferous Vegetables





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





Food Storage

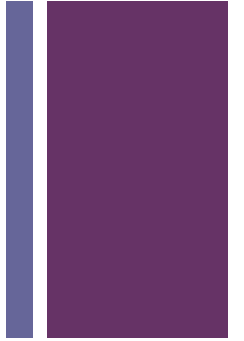


Phthalates





Avoiding Exposure to Phthalates



- Avoid heating/storage in plastic containers
- Replace old soft plastic toys (new toys are not allowed to contain the worst phthalates)
- Avoid vinyl products, flooring, and personal care and cleaning products, and synthetic candles with “parfume” or “fragrance”



PLASTIC RESIN CODES



PETE

**Polyethylene
Terephthalate**

soda bottles
water bottles
shampoo bottles
mouthwash bottles
peanut butter jars



HDPE

**High Density
Polyethylene**

milk, water and
juice jugs
detergent bottles
yogurt and
margarine tubs
grocery bags



V

Vinyl

clear food
packaging
shampoo bottles



LDPE

**Low Density
Polyethylene**

bread bags
frozen food bags
squeezable bottles
(mustard, honey)



PP

Polypropylene

ketchup bottles
yogurt and
margarine tubs



PS

Polystyrene

meat trays
egg cartons
cups and plates



OTHER

Other

ketchup
3 & 5 gallon
water bottles
some juice bottles



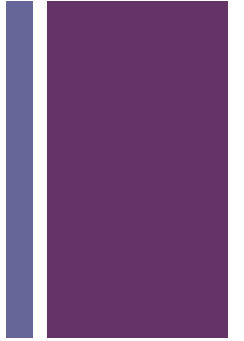
Sources of BPA

- Plastic bottles (polycarbonate)
- Food cans
- Soda cans
- Baby formula containers
- Store receipts
- Printer ink
- Currency
- Dental amalgams, sealants and fillings
- PVC piping
- Blood bags/medical tubing
- Dust
- Recycled paper
- Paint

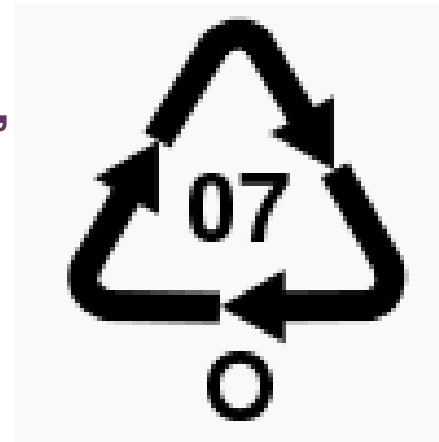




BPA: Avoiding Exposure



- Buy less canned food
- Avoid microwaving in plastic
- Do not heat or dry plastics in dishwasher (DO not place plastic items on bottom shelf)
- If you don't need a receipt, tell you cashier you don't need one
- Avoid plastics marked with “7”



Personal Care Products





Cumulative Exposures

- Adult women: 12 products daily
- Teen girls: 17 products daily
- Men: 6 products daily



Chemicals in Consumer Products Associated With Early Puberty

Jennifer Abbasi

Exposure to certain chemicals in products like toothpaste, cosmetics, and mothballs could be one reason why some girls are entering puberty early, suggests a recent study in *Human Reproduction*.

The research, funded by the National Institute of Environmental Health Sciences and the US Environmental Protection Agency, is the first to look at how prenatal exposure to several endocrine disruptors in personal care products affects puberty timing, according to the study authors.



In humans, a handful of studies have looked at how childhood exposures to chemicals in personal care products may affect puberty timing, but the results have been inconsistent. No previous studies have looked at what happens when children are exposed to most of these chemicals in the womb.

The Design

The research involved 179 girls and 159 boys who are part of the longitudinal Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS) study. The investigators measured concentrations of phthalates, parabens, and phenols in urine collected from mothers during pregnancy and, later, from their 9-year-old children. Puberty timing was assessed every 9 months between the ages of 9 and 13 years based on widely used “Tanner stages,” developmental milestones defined by specific changes to the breasts and genitals. The researchers controlled for confounders including mother’s age at puberty and children’s weight.

What We’ve Learned About...

Prenatal exposures:

- High maternal urine levels of triclosan and 2,4-dichlorophenol during pregnancy were associated with earlier men-

Chemical Culprits?

Researchers found puberty timing associations with these chemicals:

- Triclosan, used as an antibacterial agent in some toothpaste and hand soap
- 2,4-dichlorophenol, a breakdown product of triclosan and a product of pesticide manufacturing
- 2,5-dichlorophenol, used in moth balls and room and toilet deodorizers
- Monoethyl phthalate, a metabolite of diethyl phthalate, a chemical used in personal care products with fragrance
- Methyl and propyl paraben, used as preservatives in cosmetics

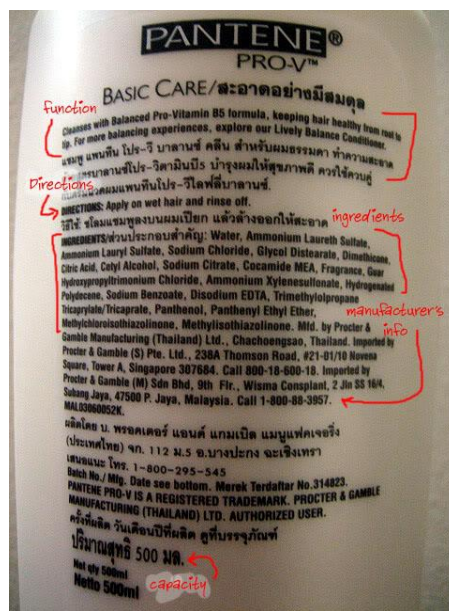
Notes of Caution

- The limited urine measurements may not reflect children’s ongoing exposures because the body metabolizes these chemicals quickly. The associations, therefore, may be underestimated.
- It’s possible that kids who go through puberty earlier use more personal care products than their slower-developing peers, exposing them to more chemicals—a case of reverse causality.
- The results may not apply to all kids. The CHAMACOS study cohort is composed of Latino children of low socioeconomic status in an agricultural community. Pesticides or other environmental exposures



Safer Personal Care Products

- Read labels: avoid cosmetics with phthalates listed as ingredients...go “phthalate free”
- Avoid “fragrance” or “parfume”
- Look up cosmetics: www.EWG.org/skindeep
- Apps: Clearya, Yuka, Healthy Living





Breast Cancer Environmental Risk Factors

KNOWN RISKS

- Hormone Replacement therapy???
- Diethylstilbestrol (DES)
- Ionizing radiation
- Tobacco smoke
- Alcohol
- **Occupational exposures:**
 - Solvents, benzene, PAHs, pesticides

SUSPECTED RISKS

- Some pesticides
- Air pollution (i.e. polycyclic aromatic hydrocarbons)
- Metals
- Dioxins
- Endocrine disrupting chemicals
 - BPA
 - Phthalates
 - Triclosan
 - Flame retardants
 - Parabens
 - Perflourooctanoic Acid (PFOA)
 - Polychlorinated biphenyls(PCBs)

BREAST HEALTH & CHEMICALS

Episode: 32



Host: Dr. Aly Cohen



William H. Goodson III, MD



Air Quality





Air Quality Tips



- Don't buy toxic stuff to begin with!
- Avoid smoking in the house
- Dust more
- Use a vacuum/HVAC with a HEPA filter
- Change filters regularly
- Choose cleaning products carefully
- Don't use *chemical* wipes
- Choose flooring carefully

Pesticides





Pesticide Tips



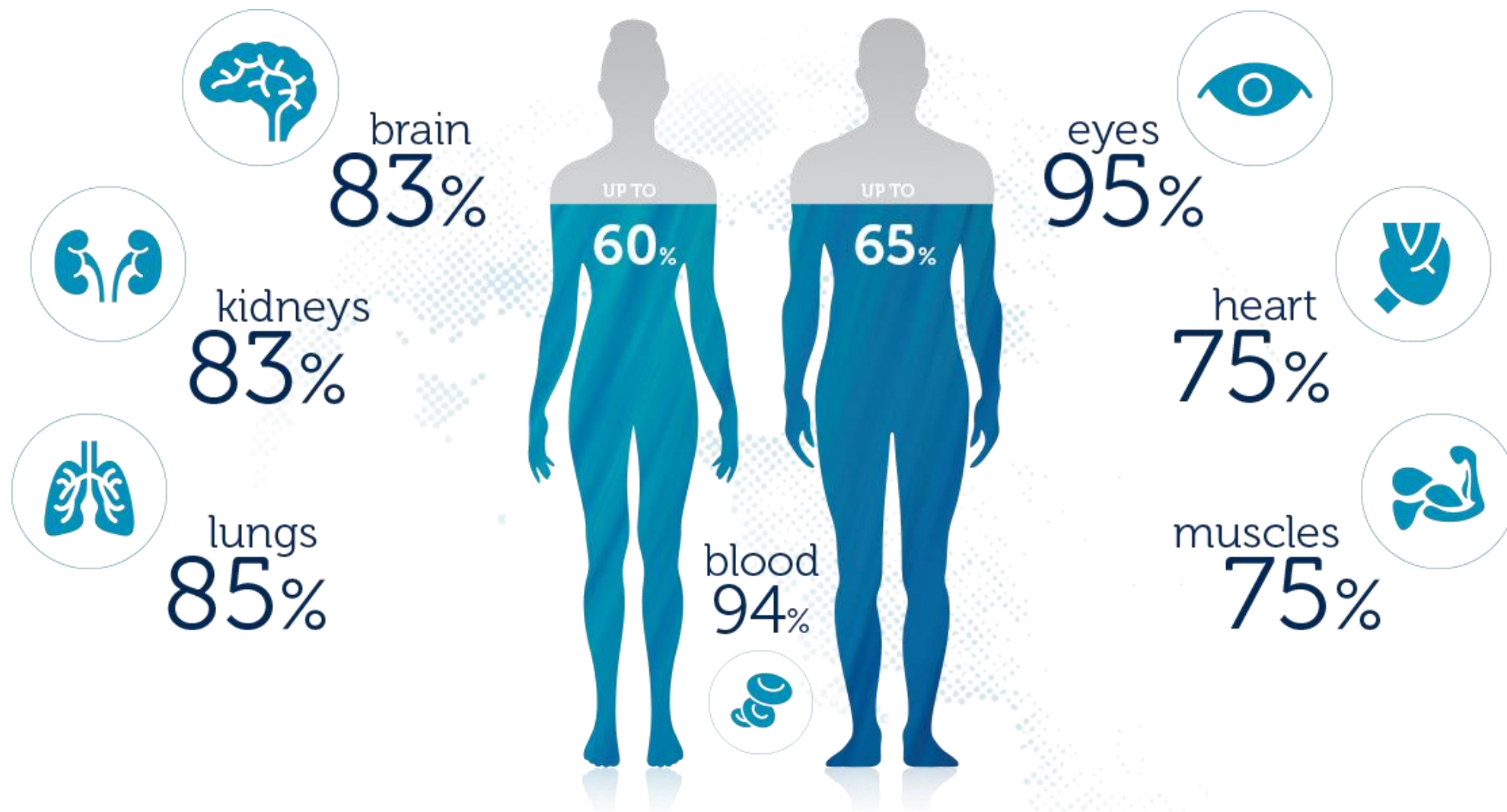
- Clean floors and carpeting regularly (HEPA filter)
- Soak produce with vinegar, baking soda, or produce detergent
- Buy organics when possible
- Use EWG Dirty Dozen/Clean Fifteen
- Limit foods with high animal fat...pesticides can accumulate
- Avoid bug sprays indoors
- Avoid 'antimicrobial' cleaners/personal care
- Remove contaminated shoes, boots, and clothing
- Avoid pesticides on pets (flea and tick collars, shampoos)
- Clean off paws
- Wear personal protective equipment when gardening/farming
- Use Integrated Pest Management (IPM) alternatives
- Speak up about agricultural spraying near homes and schools

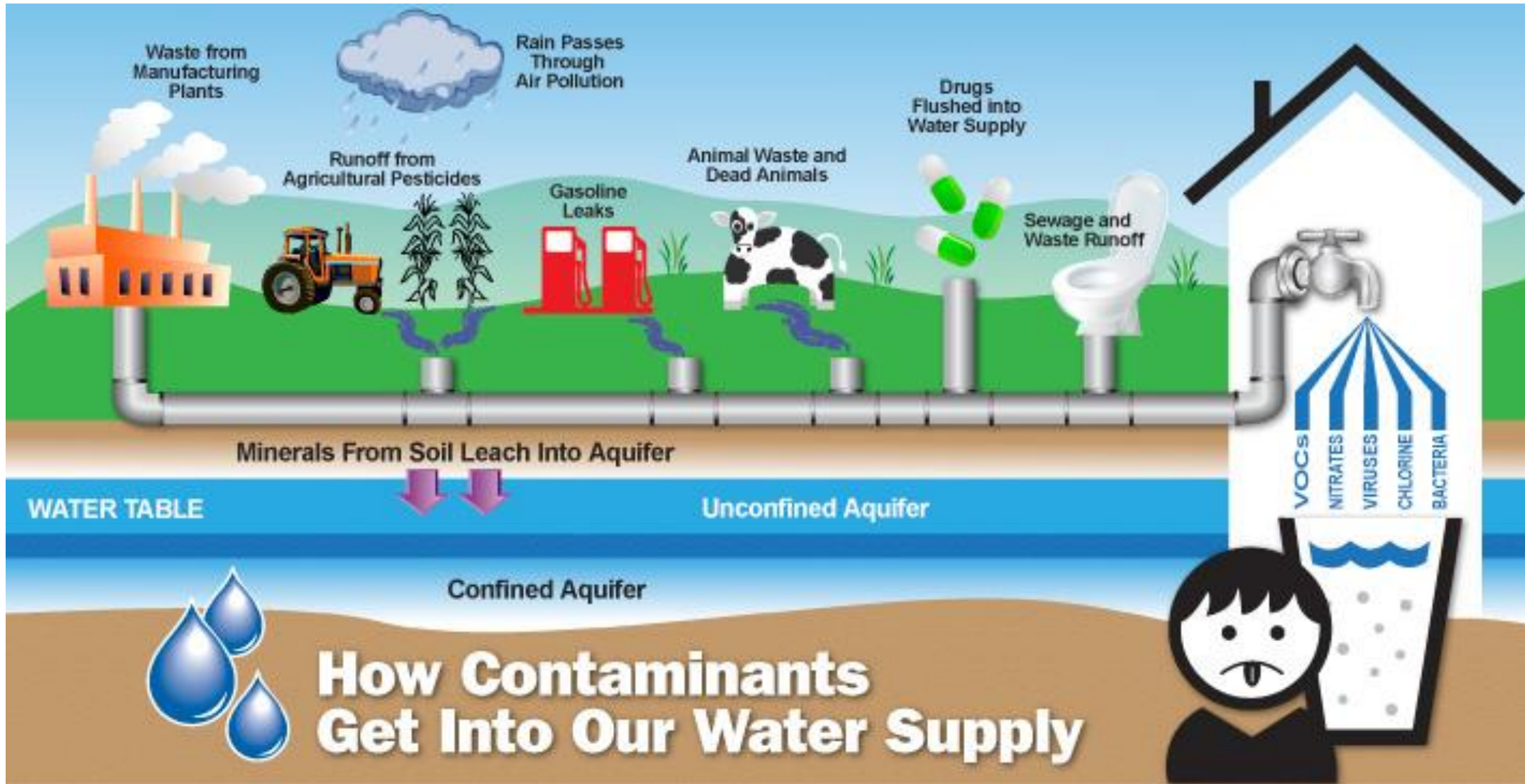


Drinking Water



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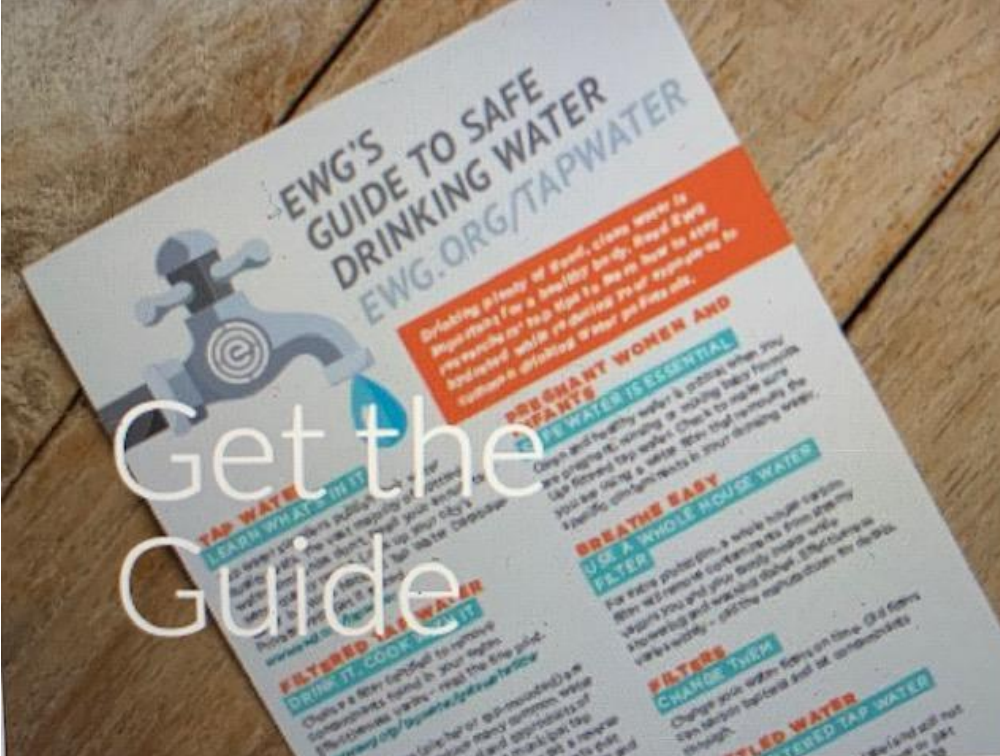
Water Contamination

(*before AND after* the treatment plant)

- Infectious Contaminants
 - Bacteria
 - Viruses
 - ?coronavirus
- Aging infrastructure/water pipes (lead)
- Agricultural run-off
 - Fertilizers (nitrates)
 - Pesticides
 - Fecal waste
- Medications
- Radionucleotides
 - Radon/uranium
 - Other nucleotides
- Industrial chemicals
 - Microplastics
 - PFOA/PFOS
 - Perchlorate
 - 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







EWG's Tap Water Database

Is your water safe?

Search for contamination in your drinking water

Enter zipcode

or find your state advanced search

GO



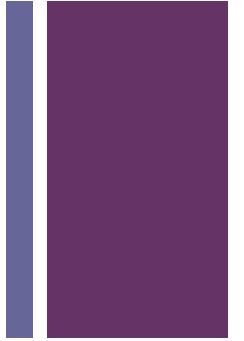
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Safe Transport of Water





Drinking Water Tips



- Use a filter when possible...especially with wells
 - Environmental Working Group (EWG.org) – filter guide/zip code database
- Use glass and stainless-steel bottles
- Fill up at home!
- Do not reuse plastic water bottles
- Look for water sold in glass Avoid water from carboys
- Look “ingredients” for bottled water
 - reverse osmosis is best option



+

Sleep





Published in final edited form as:

Science. 2013 October 18; 342(6156): . doi:10.1126/science.1241224.

Sleep Drives Metabolite Clearance from the Adult Brain

Lulu Xie^{1,*}, Hongyi Kang^{1,*}, Qiwu Xu¹, Michael J. Chen¹, Yonghong Liao¹,
Meenakshisundaram Thiyagarajan¹, John O'Donnell¹, Daniel J. Christensen¹, Charles
Nicholson², Jeffrey J. Iliff¹, Takahiro Takano¹, Rashid Deane¹, and Maiken Nedergaard^{1,†}

¹Division of Glial Disease and Therapeutics, Center for Translational Neuromedicine, Department of Neurosurgery, University of Rochester Medical Center, Rochester, NY 14642, USA

²Department of Neuroscience and Physiology, Langone Medical Center, New York University, New York, NY 10016, USA

Abstract

The conservation of sleep across all animal species suggests that sleep serves a vital function. We here report that sleep has a critical function in ensuring metabolic homeostasis. Using real-time assessments of tetramethylammonium diffusion and two-photon imaging in live mice, we show that natural sleep or anesthesia are associated with a 60% increase in the interstitial space, resulting in a striking increase in convective exchange of cerebrospinal fluid with interstitial fluid. In turn, convective fluxes of interstitial fluid increased the rate of β -amyloid clearance during sleep. Thus, the restorative function of sleep may be a consequence of the enhanced removal of potentially neurotoxic waste products that accumulate in the awake central nervous system.

“....the restorative function of sleep may be a consequence of the enhanced removal of potentially neurotoxic waste products that accumulate in the awake central nervous system.”

Exercise & Sauna



Supplements





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
- N-acetylcysteine (NAC)
- Melatonin (antioxidant)
- Green tea
(epigallocatechin gallate
(EGCG))
- Iodine (thyroid protection)
- Vitamin A



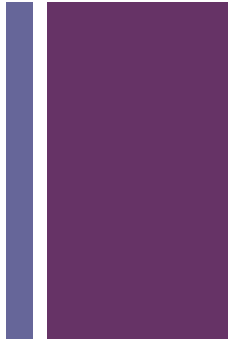


Prebiotic

- Onions
- Jerusalem artichokes
- Garlic leeks
- Leeks
- Bananas
- Jicama
- Chicory root
- Burdock root
- Asparagus
- Dandelion greens
- Peas
- Eggplant
- Chinese chives
- Soybeans
- Sugar maple
- Yogurt, cottage cheese kefir
- Breast milk

Probiotic

- Sauerkraut
- Yogurt
- Kimchi
- Kombucha
- Kefir
- Tempeh
- Breast milk





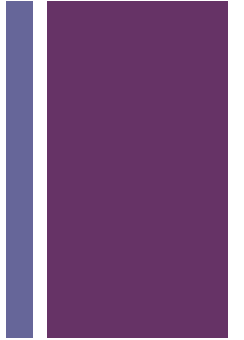
Top 12 Changes

- 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, shampoo, deodorant....with ??? 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





Take Home Messages



- Chemicals and radiation are ubiquitous!
- There is minimal oversight from U.S. laws
- Chemicals get absorbed through skin, lungs, GI tract, vaginal/anal mucosa...and they cross the placenta
- There are long-term health issues from low levels of exposure of many chemicals over time... AND during critical periods of human development!
- Avoidance AND lifestyle are key to reducing exposure!
- Environmental Exposures are a modifiable risk!!
- Many vetted resources DO exist!





*“Let us not look back in anger or forward
in fear, but around in awareness”.*

-James Thurber (1929-1961)



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TEDx Talk:

How to Protect Your Kids
from Toxic Chemicals

(YouTube)



INTEGRATIVE

ENVIRONMENTAL MEDICINE



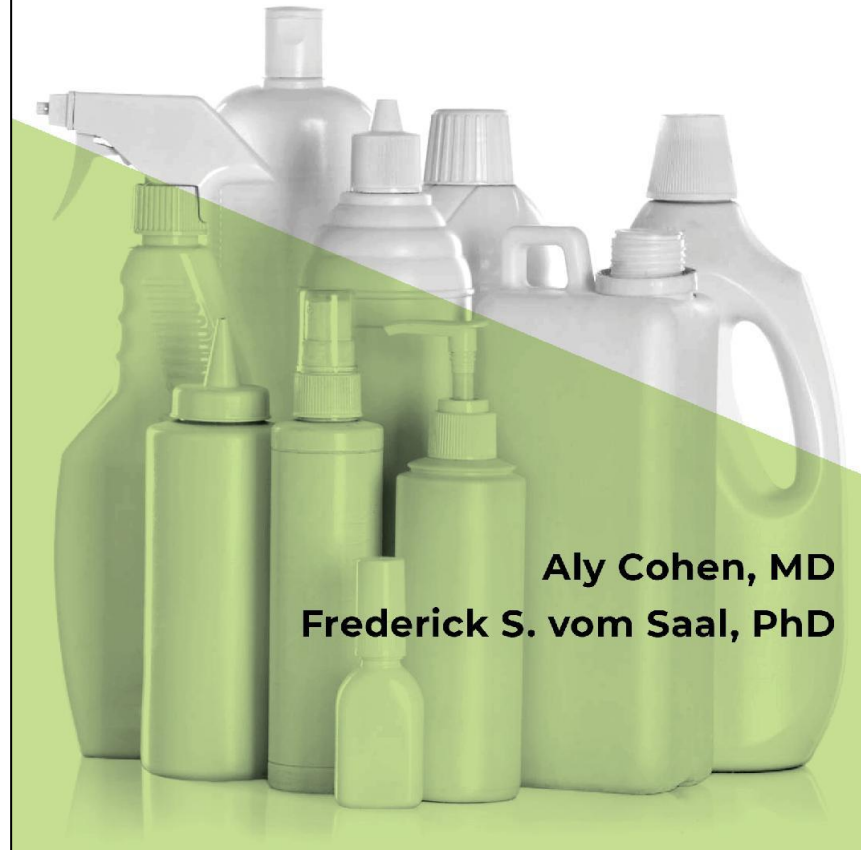
ALY COHEN, MD AND
FREDERICK S. VOM SAAL, PhD

WEIL INTEGRATIVE  MEDICINE LIBRARY

DR. WEIL'S HEALTHY LIVING GUIDES

Non-Toxic

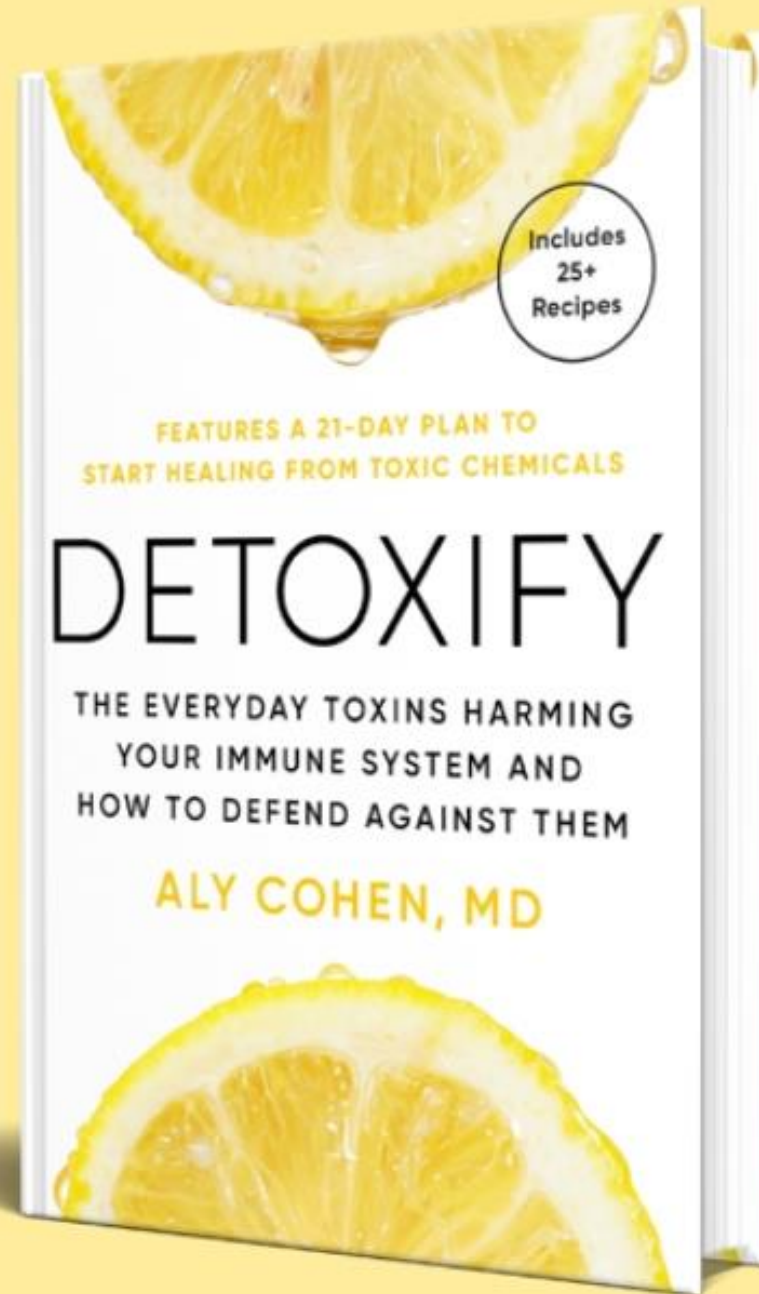
Living Healthy in a
Chemical World



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