Simple Steps to Eating Healthy in a Toxic World

Sarah Evans, PhD MPH
Strawberry Fields Farm
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Mount Sinai Children’s Environmental Health Center

- Research
- Education
  - Caregivers
  - Health Care Providers and students
  - Patients
  - Policy makers
- Patient Care
  - Pediatric Environmental Health Specialty Unit (PEHSU)
Research at the Mount Sinai CEHC

- Epigenetics and Prenatal Programming
- Neurodevelopment
- Endocrine Disruptor Research Program
- Air Pollution, Stress, and Respiratory Health
- The Senator Frank R. Lautenberg Environmental Health Sciences Laboratory
- The Mount Sinai Pregnancy Biobank
- Environmental Pediatrics Training Program
Your oatmeal may be killing you

By Kathianne Boniello
April 30, 2016 | 9:50pm

Arsenic, rice and your baby's diet

By Sandee LaMotte, CNN
© Updated 3:46 PM ET, Tue April 26, 2016

THE 9 SCARIEST FOOD ADDITIVES YOU'RE EATING RIGHT NOW

Some of the so-called healthy snack foods and packaged goods you're tossing into your grocery cart each week may be filled with "extras" that can, in the long term, put your health at risk.
Chemical in BPA-free plastic may not be any safer

Fast food may come with a side of phthalate chemicals

People who ate more fast food had higher average levels of phthalate chemicals in their systems, a new study found.
What’s for Dinner???
The New Pediatric Morbidity

- Asthma
- Food Allergy
- Obesity
- ADHD
# Identified Prevalence of Autism Spectrum Disorder

**ADDM Network 2000 – 2012**

**Combining Data from All Sites**

<table>
<thead>
<tr>
<th>Surveillance Year</th>
<th>Birth Year</th>
<th>Number of ADDM Sites Reporting</th>
<th>Prevalence per 1,000 Children (Range)</th>
<th>This is about 1 in X children...</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1992</td>
<td>6</td>
<td>6.7 (4.5 – 9.9)</td>
<td>1 in 150</td>
</tr>
<tr>
<td>2002</td>
<td>1994</td>
<td>14</td>
<td>6.6 (3.3 – 10.6)</td>
<td>1 in 150</td>
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<tr>
<td>2004</td>
<td>1996</td>
<td>8</td>
<td>8.0 (4.6 – 9.8)</td>
<td>1 in 125</td>
</tr>
<tr>
<td>2006</td>
<td>1998</td>
<td>11</td>
<td>9.0 (4.2 – 12.1)</td>
<td>1 in 110</td>
</tr>
<tr>
<td>2008</td>
<td>2000</td>
<td>14</td>
<td>11.3 (4.8 – 21.3)</td>
<td>1 in 88</td>
</tr>
<tr>
<td>2010</td>
<td>2002</td>
<td>11</td>
<td>14.7 (5.7 – 21.5)</td>
<td>1 in 68</td>
</tr>
<tr>
<td>2012</td>
<td>2004</td>
<td>11</td>
<td>14.6 (8.2 – 24.6)</td>
<td>1 in 68</td>
</tr>
</tbody>
</table>
Are there environmental risk factors for disease?

ENVIRONMENTAL DISEASE IS PREVENTABLE
Chemical Safety in the U.S.

- 84,000 new chemicals since WWII
- 3000 high production volume
- <20% have been tested for toxicity to children
- Toxic Substances Control Act 1976
  - Exempted 62,000 chemicals
- Frank R. Lautenberg Chemical Safety for the 21st Century, June 2016
Food Regulations

>10,000 CHEMICALS IN FOOD

1,480 direct food additives approved by FDA
140 color additives approved by FDA
2,700 natural or artificial flavors determined to be GRAS
900 GRAS and listed, affirmed, or reviewed by FDA
1,000 GRAS as determined by manufacturer and not reviewed by FDA
500 pesticides
3,800 indirect additives/food contact substances

Data from Pew Food Additives Project.

Center for Science in the Public Interest (www.cspinet.org)
Our Chemical Body Burden

- 200+ chemicals detected in:
  - Urine
  - Blood
  - Cord Blood
  - Breast milk

- Highest exposures in children

- Chronic, low-dose + cumulative
Children are Uniquely Vulnerable

- Close to the ground
- Hand-to-mouth behavior
- Greater exposure by weight
- Lack of variety in diet
- Immature metabolism
- More years of future life
- Continuously developing systems:
  - Reproductive system
  - Nervous system
Windows of Susceptibility

Not just *WHAT*, but *WHEN*

During these different time periods, the developing organ systems are most sensitive to certain environmental toxins.
Individual Susceptibility

“Genetics loads the gun and environment pulls the trigger.”
Francis Collins, NIH Director

- Studies that estimate risk are conducted at a population level
- Not every person who is exposed will develop disease
- Genes and environment interact
Practice the Precautionary Principle

- Avoid exposure when:
  - Risk of harm is suspected
  - Existing scientific evidence cannot prove cause and effect

“Better Safe Than Sorry”
Organic Foods Demystified

- Applies to raw, fresh, and processed products
- USDA Definitions
  - 100% Organic
  - Organic = 95%
  - Made with Organic Ingredients = 70%

- USDA Standards
  - No pesticides, irradiation, or fertilizers
  - Not made with synthetic ingredients or bioengineering
  - No Growth Hormones or antibiotics (Livestock)
  - Inspections – annual and random
Agricultural antibiotics contribute to antibiotic resistance