

# Global Alert Autism and Environment Protecting our Children

**Autism One  
May 27 2012**

Norman W. Schwartz MD  
Milwaukee, WI

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**"No nation is any healthier than its children."**  
Harry Truman (1884-1972) 33<sup>rd</sup> President of USA



## Autism What is Going On???

### Rare to Pandemic

- 1943- psych Leo Kanner first report
- 2012- 68 yrs & > 13,000 peer-reviewed papers later
- **No idea of cause, prevention, or cure**
- Why? Initial focus behavioral- language, social, limited/repetitive activities- conditioned three generations of clinicians perceptions and awareness
- No clear biological markers for autism, no medical criteria for autism.
- Science set back 1950-1970's Autism due to BAD PARENTING

Centers for Disease Control and Prevention

# MMWR

Morbidity and Mortality Weekly Report  
Surveillance Summaries / Vol. 61 / No. 3  
March 30, 2012

## Prevalence of Autism Spectrum Disorders — Autism and Developmental Disabilities Monitoring Network, 14 Sites, United States, 2008

ADDM Network 2000-2008  
Combining Data from All Sites

Surveillance Year	Birth Year	Number of ADDM Sites Reporting	Prevalence per 1,000 Children (Range)	This is about 1 in X children...
2000	1992	6	6.7 (4.5-9.9)	1 in 150
2002	1994	14	6.6 (3.3-10.6)	1 in 150
2004	1996	8	8.0 (4.6-9.8)	1 in 125
2006	1998	11	9.0 (4.2-12.1)	1 in 110
2008	2000	14	11.3 (8.8-21.2)	1 in 88

What's really behind the increase in autism rates. May 7, 2012

### THE COLLABORATIVE ON HEALTH AND THE ENVIRONMENT

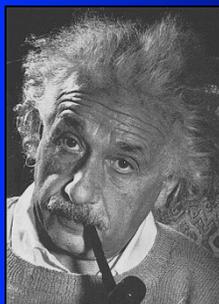


Face the reality- our children are sick from preventable causes **NOT** better diagnosis

- 1980- 200 billion pounds of chemicals/year
- Now- 27 trillion pounds of chemicals/yr
- 1960- 400 million pounds of pesticides/yr
- Now 4.5 billion pounds pesticides/yr
- National Academy of Sciences 50% of pregnancies- fetal death or less than healthy child

## Opinions about obviousness are to a certain extent a function of time.

Albert Einstein



- The earth is flat.
- Children should be seen and not heard
- Women are not logical enough to vote
- Autism caused by bad parenting
- Autism is genetic.

During a time of extreme deceit, simply telling the truth is revolutionary.

George Orwell

**Autism is a whole body medical disorder**

- Oxidative stress
- Mitochondrial disorders
- Inflammation
- Seizure disorder
- Calcium Dysregulation
- Gastrointestinal abn
- Fatty acid deficiencies
- Toxic metals burden
- Multiple Immune abn
- Decrease brain blood flow
- Brainstem abnormalities
- Glutathione decrease
- Toxicant exposure
- Melatonin decrease
- Oxytocin decrease
- Serotonin abn
- Family hx autoimmune
- Low and high cholesterol

**What Do All These Have In Common**

**All Associated with Autism**

- Vinyl flooring, pesticides
- Power plants, landfills, incinerators air pollution
- Toxic metals
- Increased rain fall
- Northern latitude
- Gut Ecology
- Living near freeway
- Increased cable usage
- Living urban area
- Antidepressants in preg
- Decreased time breast feeding
- March birth, parental psych hx
- shorter birth interval, prematurity, first born
- HBP, DM, Obesity-mom
- Fetal distress, low apgar
- In vitro fertilization
- Unplanned C-section
- Vaccinations
- Older parents
- Higher Socioeconomic
- Maternal obesity, DM

ORIGINAL ARTICLE

Epidemiology • Volume 20, Number 1, January 2009

The Rise in Autism and the Role of Age at Diagnosis

Irva Hertz-Picciotto<sup>a,b</sup> and Lora Delwiche<sup>a</sup>

**SCIENTIFIC AMERICAN**

SEARCH [ ]

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Energy & Sustainability • Evolution • Health

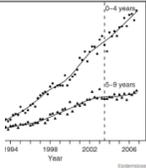
Home • News •

News | Health

**New Study: Aut Environment**

Research links soaring incidence of to fetal and infant exposure to pesti

By Maria Cone | January 9, 2009 | 76



Annual incidence rates of autism in California

It's time to start looking for the environmental culprits responsible for the remarkable increase in the rate of autism in California.

U.S. Senate Committee on ENVIRONMENT & PUBLIC WORKS

Environment and Public Works Subcommittee on Children's Health

"State of Research on Potential Environmental Health Factors with Autism Related Neurodevelopment Disorders"

August 3, 2010

We know that autism prevalence continues to increase dramatically clearly implicating environmental factors in autism risk. We must identify which environmental exposures and predict success for current treatment modalities. Moreover, we have learned that many of the molecular and cellular systems that are associated with autism are the very same ones that are the target of environmental chemicals currently of concern to human health because of their

**Exploring the Environmental Causes of Autism and Learning Disabilities**

The New York Academy of Medicine • Hosack Hall • New York, New York

Mount Sinai Children's Environmental Health Center

The Mount Sinai Medical Center

What Research is NIEHS Supporting into Environmental Causes of Autism and Learning Disabilities?

Linda S. Birnbaum, PhD, DABT, ATS  
Director, National Institute of Environmental Health Sciences and the National Toxicology Program

The Need for Studies of Environmental Causation of Autism and Learning Disabilities

Philip J. Landrigan, MD, MSc

Environment and Autism: State of the Science and the CHARGE Study

Irva Hertz-Picciotto, PhD

It is increasingly clear that environmental exposures also contribute to autism

**Microcosm of Modern Living**

1 in 3 veterans persistent health problems



- 30 vaccines in 3 days
- Multiple pesticides- organophosphates, DEET...
- Multiple infectious agents
- Environment- Chemicals ,smoke, petrochemical fumes, sand, dust
- Radioactivity

## Gulf War Illness

### Immediate family members

- Spouses up to 68% w Chronic Fatigue, Fibromyalgia syndromes- correlated with chronic illness symptomatology
- Children up to 60% Autism/ADHD-correlated with younger age, multiple illness, antibiotics

**Pathobiology of Gulf War Illnesses**

**Immediate Family Members**

**Adults: Chronic Fatigue Syndrome**

**Children: Autism/ADHD**

Estimate of infection incidence ~80%

Prof. G. L. Nicolson The Institute for Molecular

# Research Autism and Environment

## Toxic Metals

- Uncouple Metabolic Pathways
- Inhibit Enzymes
- Pro-oxidant
- Synergistic adverse effects with mineral deficiencies
- Proportionally greater adverse effect in children
- Trigger autoimmunity

### Autism and Autistic Symptoms

## Autism after lead poisoning in Two Children

Theodore I. Lidsky, PhD\*  
Jay S. Schneider, PhD\*

**KEY WORDS:** autism, pervasive developmental disorders, lead, plumbism

impairments of the development of both nonverbal and verbal communication and reciprocal social interactions seen in association with an abnormally restricted range of interests.<sup>2</sup> Current diagnostic schema indicate an onset of

**ABSTRACT**

The present paper presents two case histories of children who, during periods of severe lead poisoning, developed autism or autistic symptoms. These cases underscore that there are multiple causes of autism and the importance of environmental influences in some cases.

## Mercury



1 in 6 US children born at risk for Hg Toxicity > 600,000

Fetal brain is more susceptible than adult brain

No Safe Level of Exposure

Eur J Pediatr (2003) 162: 559–564  
DOI 10.1007/s00431-003-1239-2

YOUR DIAGNOSIS

Christina Chrysochou · Christoph Rutishauser  
Christine Rauber-Läthy · Thomas Neuhaus  
Eugen Boltshauser · Andrea Superti-Furga

### An 11-month-old boy with psychomotor regression and auto-aggressive behaviour

Received: 6 March 2003 / Accepted: 2 April 2003 / Published online: 16 May 2003  
© Springer-Verlag 2003

**Sudden onset regression; autistic behaviors after unrecognized mercury exposure from broken thermometer**

The previous 2 weeks, the child no longer laughed or played, was becoming more and more restless, and slept only 1 to 2 h a night. He was no longer able to crawl and to stand up, and he had lost weight. Clinical examination revealed swollen hands and feet with skin desquamation, axial hypotonia and brisk reflexes. The child sweated profusely, refused to crawl or stand, showed stereotypic movements of the hands (kneading) and repeatedly bit objects or his own hands.

and feet were swollen, erythematous and tender (Fig. 1). A fine maculo-papular exanthema was present on the trunk. There was muscular hypotrophy with peripheral oedema and axial hypotonia. Physical findings included tachycardia (160–180/min) and arterial hypertension (140/80 mmHg). The boy refused to stand, but would sit in a crouched position, had a sad and apathetic look, took little interest in his surroundings and would occasionally bite his



## Environmental Health Perspectives

### April 2012

The top 10 toxic chemicals suspected to cause autism and learning disabilities

1. Lead	Editorial	Outreach
2. Methylmercury		Media
3. PCBs	A Research Strategy to Discover the Environmental Causes of Autism and Neurodevelopmental Disabilities	
4. Organophosphate pesticides		Outreach
5. Organochlorine pesticides		Media
6. Endocrine disruptors	Philip Landrigan, Luca Lambertini, Linda	
7. Automotive exhaust	Review	Outreach
8. Polycyclic aromatic hydrocarbons	A Strategy for Comparing the Contributions of Environmental Chemicals and Other Risk Factors to Neurodevelopment of Children	
9. Brominated flame retardants		Media
10. Perfluorinated compounds		Outreach

**David C. Bellinger**  
**PCB 95 Modulates Calcium-Dependent Signaling Pathway Responsible for Activity-Dependent Dendritic Growth**

## Scientific Consensus Statement on Environmental Agents Associated with Neurodevelopmental Disorders

### High-confidence Conclusions

- Alcohol
- Lead
- PCBs
- PAHs
- Endocrine disruptors
- Nicotine environmental tobacco smoke
- Solvents
- Mercury
- Fluoride
- Pesticides
- Manganese
- Additives

Prevalence of the "New Morbidities" in United States Children

Condition	Prevalence % of Children
Autism	~1
Conduct Disorder	~2
Learning Disability	~6
ADHD	~8
Preterm Birth	~12

Contents lists available at ScienceDirect

Journal of Neuroimmunology

Journal homepage: www.elsevier.com/locate/jneuroim

### Preliminary evidence of the *in vitro* effects of BDE-47 on innate immune responses in children with autism spectrum disorders

Paul Ashwood<sup>a,d,e</sup>, Joseph Schauer<sup>b,d,e</sup>, Isaac N. Pessah<sup>c,d,e</sup>, Judy Van de Water<sup>b,d,e,\*</sup>

Immune dysregulation and autoimmune reactivity may contribute to the etiology of ASD and are likely the result of both genetic and environmental susceptibilities. A common environmental contaminant, 2,2',4,4'-tetrabrominated biphenyl (BDE-47), was tested for differential effects on the immune response of peripheral blood mononuclear cells (PBMC) isolated from children with ASD (n=19) and age-matched typically developing controls (TD, n=18). PBMC were exposed *in vitro* to either 100 nM or 500 nM BDE-47, before challenge with bacterial lipopolysaccharide (LPS), an innate immune activator, with resultant cytokine production measured using the Luminex<sup>®</sup> multiplex platform. The cytokine responses of LPS-stimulated PBMC from ASD and TD subjects diverged in the presence of 100 nM BDE-47. For example, cells cultured from the TD group demonstrated significantly decreased levels of the cytokines IL-12p70, GM-CSF, IL-6, TNF $\alpha$ , and the chemokines MIP-1 $\alpha$  and MIP-1 $\beta$  following LPS stimulation of PBMC pretreated with 100 nM BDE-47 compared to LPS-stimulated PBMC from TD controls. In contrast, cells from ASD subjects demonstrated significantly increased levels of the inflammatory chemokine IL-8 (p<0.04) in cells cultured from subjects with ASD but not in cells from TD controls. These data suggest that *in vitro* exposure of PBMC to BDE-47 affects cell cytokine production in a pediatric population. Moreover, PBMC from the ASD subjects were differentially affected when compared with the TD controls suggesting a biological basis for altered sensitivity to BDE-47 in the ASD population.

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Journal of Neuroimmunology 208 (2009) 130–135

CHEMICAL FALLOUT | UPDATE

## EPA a failure on chemicals, audit finds

### Assessment of toxic risks inadequate, says new chief

### FDA relied heavily on BPA lobby

### Regulators actively reached out to industry, e-mails show

By Susanne Rust and Meg Kissinger of the Journal Sentinel

Posted: May 16, 2009

the ONION<sup>®</sup> a.v. club | store | subs

Mobile/PD

## EPA To Drop 'E,' 'P' From Name

"We're not really environmental anymore, and we certainly aren't protecting anything."

American Academy of Pediatrics  
 DEDICATED TO THE HEALTH OF ALL CHILDREN<sup>™</sup>

For Release: April 25, 2011 12:01 am (ET)

### AAP SAYS U.S. FAILS TO PROTECT CHILDREN FROM HAZARDOUS CHEMICALS

# PEDIATRICS

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

## Attention-Deficit/Hyperactivity Disorder and Urinary Metabolites of Organophosphate Pesticides

The findings showed that children with higher urinary levels of organophosphate metabolites were more likely to meet the diagnostic criteria for ADHD.

## Clinical Epigenetics

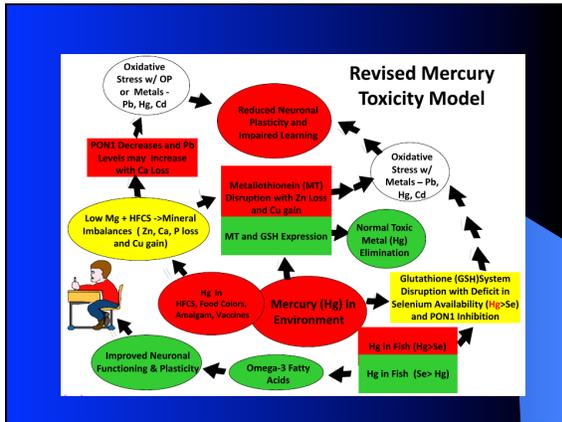
BioMed Central  
 The Open Access Publisher

### A macroepigenetic approach to identify factors responsible for the autism epidemic in the United States

Clinical Epigenetics 2012, 4:6 doi:10.1186/1868-7083-4-6

Renee Dufault (rdufault@foodingredient.info)  
 Walter J Lukiw (wlukiw@lsuhsc.edu)  
 Raquel Crider (rcride01@shepherd.edu)

developmental disorders. Neurodevelopment can be adversely impacted when gene expression is altered by dietary transcription factors, such as zinc insufficiency or deficiency, or by exposure to toxic substances found in our environment, such as mercury or organophosphate pesticides. Gene expression patterns differ geographically between rural and urban areas, and this study suggests that the increase in autism in the U.S. is not related to mercury exposure from fish, coal-fired power plants, thimerosal, or dental amalgam but instead to the consumption of HFCS. Consumption of HFCS is associated with increased levels of fructose, which is a known epigenetic modifier.



*Medica - a Journal of Clinical Medicine*

ORIGINAL PAPERS

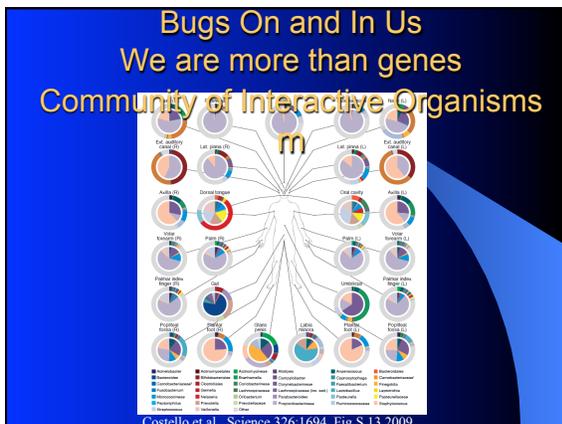
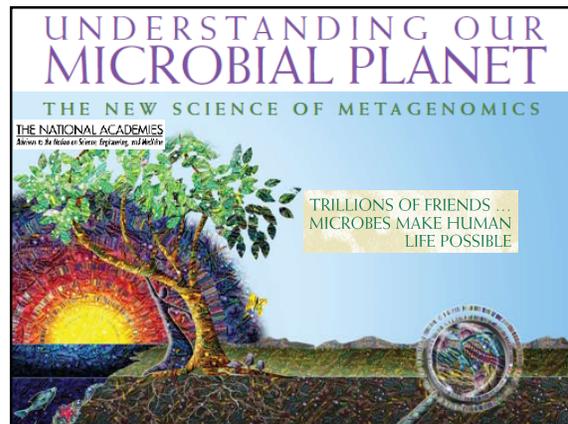
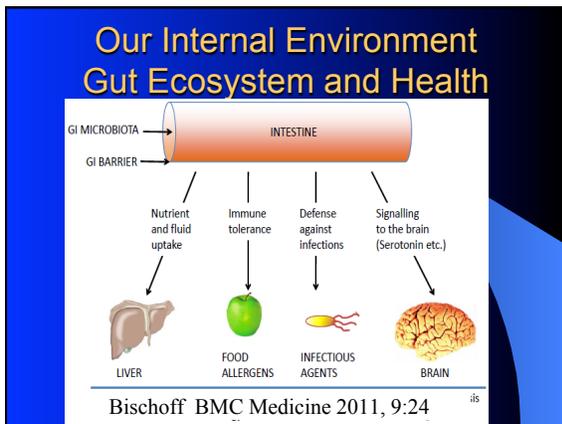
### Toxic Metals and Essential Elements in Hair and Severity of Symptoms among Children with Autism

Eleonor BLAUROCK-BUSCH<sup>1</sup>; Omnia R. AMIN<sup>2</sup>; Hani H. DESSOKI<sup>3</sup>;

**Results:** By comparing hair concentration of autistic vs nonautistic children, elevated hair concentrations were noted for aluminum, arsenic, cadmium, mercury, antimony, nickel, lead, and vanadium. There was a significant positive correlation between lead & verbal communication ( $p = 0.020$ ) and general impression ( $p = 0.008$ ). In addition, there was a significant negative correlation between zinc & fear and nervousness ( $p = 0.022$ ).

**Conclusion:** Our data supports the historic evidence that heavy metals play a role in the development of ASD. In combination with an inadequate nutritional status the toxic effect of metals increase along with the severity of symptoms.

*Medica* | A Journal of Clinical Medicine, Volume 7 No.1 2012



Journal of proteome research

Article

#### Urinary metabolic phenotyping differentiates children with autism, from their unaffected siblings and age-matched controls

Ivan Kok Seng Yap, Manjya Angley, Kirill A Veselkov, Elaine Holmes, John C Lindon, and Jeremy Kirk Nicholson

main metabolic changes- concentrations of mammalian-microbial co-metabolites

Contents lists available at ScienceDirect

Behavioural Brain Research

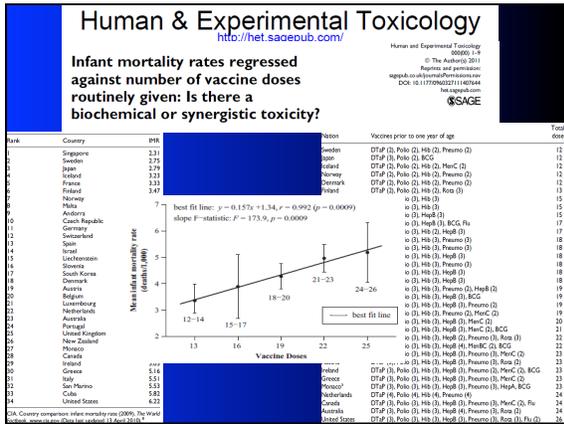
ELSEVIER

journal homepage: www.elsevier.com/locate/abbr

Research report

Effects of the enteric bacterial metabolic product propionic acid on object-directed behavior, social behavior, cognition, and neuroinflammation in adolescent rats: Relevance to autism spectrum disorder

Derrick F. MacFabe<sup>a,b</sup>, Nathan E. Cain<sup>a</sup>, Francis Boon<sup>a</sup>, Klaus-Peter Ossenkopp<sup>b,c</sup>, Donald P. Cain<sup>b,c,\*</sup>



### Autisms Complex NewThinking Needed

One agent → One disease → One CPT Code

- Away from primacy of genes to environment
- Biochemical Individuality – each child unique with how they react to multiple potential toxins
- Multiple factors- timing of exposure, host response, co-factors: toxic metals, pollutants, genetics, epi-genetics
- Brain and body connected-can be injured together and mutually effect each other
- Increase in autism and ADHD- part of an epidemic of epidemics
- If epidemics not caused by genetics, then we can act to remediate, mitigate, and prevent
- Cannot separate ourselves from nature; loss of biodiversity affects all life

### Children are not Little Adults Or Little Canaries

Canary in a Coal Mine

Canary in a Coal Mine  
Lead, cadmium, arsenic  
toxic levels baby food

### Babies Born Toxic

- 287 chemicals detected in umbilical cord blood
- 180 cause cancer in humans or animals
- 217 CNS & neurotoxins
- 208 cause birth defects or abnormal animals
- 1/3 banned 20 years ago

#### BodyBurden

The Pollution in Newborns

A benchmark investigation of industrial chemicals, pollutants, and pesticides in human umbilical cord blood

### Human Brain- Most Complex Structure In Known Universe

and most Vulnerable

[www.icsh.org/pdfs/LDDI/LDDIStatement.pdf](http://www.icsh.org/pdfs/LDDI/LDDIStatement.pdf)  
 Scientific Consensus Statement on Environmental Agents Associated with Neurodevelopmental Disorders

#### Children are not little adults

- Environmental exposures start early: pre-conception, during gestation (*in utero* exposure), via breast milk, infant formula and then through contact with the environment.
- For their body weight, children eat and breathe more than adults, thus a small exposure translates into a big dose.
- Their organ systems, particularly the nervous system, are forming and are thus more susceptible to the effects of chemicals.
- Young children are prone to hand-to-mouth behaviors that expose them to higher levels of ambient chemicals.

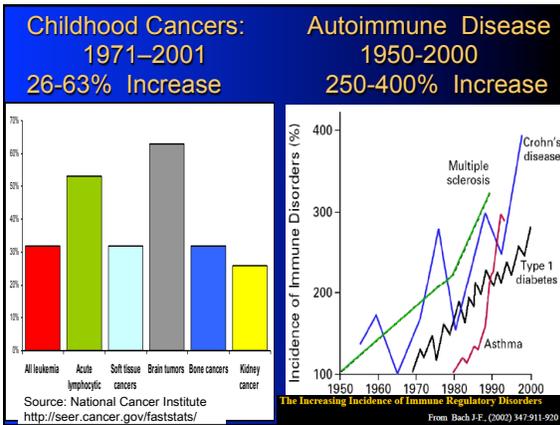


**First It Was Bees**

**Now It's Bats Both Are Dying**

**Who's next—frogs, dolphins, seals and ...**

**Males**



**ENVIRONMENTAL WORKING GROUP** [ewg.org/kidsafe](http://ewg.org/kidsafe)

**Pollution in People, Health Problems on the Rise**

**Reasons to Support the Kid-Safe Chemicals Act**

**THE UNITED STATES HAS THE HIGHEST CANCER RATE IN THE WORLD**

EWG studies found 253 chemicals linked to cancer in 160 people tested (EWG 2008). Children face the greatest risks from exposures to carcinogens: Environmental Protection Agency studies show that infants up to age two are, on average, ten times more vulnerable to carcinogenic chemicals than adults, and 100 times more vulnerable to neurotoxic chemicals than adults.

**THE UNITED STATES HAS THE HIGHEST CANCER RATE IN THE WORLD**

**CHILDHOOD ASTHMA MORE THAN DOUBLED IN 20 YEARS**

**ONE IN SIX CHILDREN HAS A DEVELOPMENTAL DISORDER**

**ONE IN EVERY EIGHT BABIES IS BORN PREMATURELY**

**Guidance**

These kids are trying so hard to show us how to live in a cleaner world. These kids are here for a reason: to teach us to eat better, clean up the air, get rid of toxins because they can't survive.

Jenny McCarthy

**My Approach to Detox Treatment**

- First Restore normal physiology
  - Assess total toxic load of endotoxins from body and gut microbial metabolism and exotoxins from food, water, air, environment with appropriate testing
- Natural treatments
- Last Drugs

**Better outcomes, fewer side effects**

## Our Miraculous Bodies Detox By:

- **Metallothionein:** natural chelator, in health abundant; nutritional deficits or distress depleted
- **Liver:** 2 step process detoxification. transforms toxins to facilitate elimination
- **Antioxidants:** neutralize damaging free radicals
- **Bile:** eliminates fat-soluble toxins, needs fiber
- **Sweating:** eliminates heavy metal some toxins
- **Low temperature saunas:** 105-110°F
- **Hair, fingernails, skin:** shed toxins

## Detoxification Limitation in Autism Biomedical Treatments Can Help

- Impaired Methylation
- Impaired sulfur/glutathione chemistry
- Increased oxidative stress
- Decreased ability excrete heavy metal
- Decreased ability detoxify pesticides, pollutants

## Start Detox with Diet Crucial for Healthy Gut Ecology

- Choose fresher, unprocessed, whole foods grown to vine ripeness; participate in and prepare your food
- Local organic and biodynamic when possible
- Alkaline- veggies, fruits with high minerals, buffer acidity, decrease toxic metal absorption, support detox
- Detox Foods- cruciferous veggies, ginger, garlic, onions
- Raw honey, maple syrup, stevia preferred
- Community Supported Agriculture (CSA)
- High fiber foods help remove toxins
- Glass containers preferred for storage

## Healthy Fats

- Depleted by toxins;
- Omega-3, 6, 9- essential fatty acids
- Critical for membrane fluidity, function, and information processing, critical in brain
- Omega 3 sources limited, fish oil good source

## Probiotics

- Encourages beneficial intestinal ecology
- Facilitates detoxification of chemicals
- Balances immune system
- Produces essential nutrients
- Use fermented foods- kefir, sauerkraut, kombucha, kim chee,

## Avoid/Reduce

- Tylenol, use botanicals or Motrin (Advil)
- Antibiotics
- Artificial sweeteners, corn sweeteners
- Colorings, preservatives
- Irradiated and microwave
- Excitotoxins- glutamate, sulfites, nitrites, propionate
- Be aware of phenols- bananas, apples, grapes, berries
- Be aware of excess copper – water, nuts, chocolate
- Plastic wraps, bottles, containers
- Pesticides, herbicides, chemically treated clothes, wood in and outside home

## IS ORGANIC FOOD WORTH THE EXTRA COST?

**NIHES** National Institute of Environmental Health Science  
EHP SCIENCE EDUCATION PROGRAM  
ehponline.org/education

REVIEW Open Access

A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef

- Higher omega 3 fatty acids
- Increased glutathione levels
- Increased beta carotene, vitamin E
- Increased anti-ox enzymes

## Diet is kids main pesticide exposure

JOURNAL OF APPLIED NUTRITION, VOLUME 62, NUMBER 1, 2011  
COMPLEMENTARY  
**Organic Food 2x More Essential Elements**  
Organic Foods vs Supermarket Foods: Element Levels



**THE LANCET**  
**Effects of elimination diet on ADHD behaviour: a randomised trial**

Restricted diet difficult but may ease ADHD symptoms

78 % children less ADHD symptoms; reintroducing foods increased ADHD symptoms.  
 Restricted diet: rice, white meat, vegetables, fruit; eliminated wheat, tomatoes, oranges, eggs, dairy.

**"We think that dietary intervention should be considered in all children with ADHD"**

**What to do: Household Environment**

- Water
- Clean Air
- Personal Care Products
- Clothing/Laundry
- House and Garden
- Toxic metals
- Plastics

**Pure Water**

- Pure water is essential; dehydration hinders the body's ability to eliminate waste and keep resilient; pesticide levels, heavy metals, hormone residues, volatile organic compounds fluoride more important than bacteria

**Clean Air**

- Fresh air, outdoors
- Use fresh flowers, natural oils
- **Avoid** air fresheners, sprays, perfumes, cleaning agents, new paints, new carpets, flea treatments, insecticides, furniture chemicals
- Use HEPA and furnace filters
- Check for CO output in gas appliances
- Be aware humidity (optimal 45-50%) mold

**Personal Care Products**

- Nearly all deodorants contain aluminum, which is readily absorbed
- Perfumes and cosmetics can contain multiple potential toxins.
- Organic cotton clothes, most fabrics have chemicals
- Be aware fungicides, flamer retardants bedding, mattress

**Clothing and Laundry**

- Detergents and fabric conditioners are common allergens, contain multiple toxins.
- Choose natural products.

**House and Garden**

- Cleaning products- natural, biodegradeable
- Minimal perfumes, chemicals
- Flame retardants in clothing, fungicides in bedding
- Persistent organic pollutants in carpets
- Herbicide & pesticides free
- Do not allow children or pets on treated lawns for at least 3 weeks after spraying
- Arsenic in treated wood
- Chlorine from pools

**Toxic Metal Sources**

- Lead: toys, vinyl, food, lead paint before 70's
- Mercury- amalgams, vaccines, breathing- power plants incinerators
- Aluminum- cookware, deodorants, baking soda, cans
- Arsenic- chicken, treated wood
- Fluoride- toothpaste, water, treatments

**Plastics**

- No phthalates, bisphenols, pvc wraps, microwaving
- 1,2,4,5 best choices, 1&5 can contain phthalates
- Glass always preferable
- [www.healthobservatory.org/library.cfm?refid=77083](http://www.healthobservatory.org/library.cfm?refid=77083) info on safer plastics



## Gastrointestinal Support

- Treat Constipation/diarrhea
- Digestive enzymes
- Pre and probiotics
- Treatment guided by symptoms and lab
- Antifungals, antibacterials, antiparasite treatment- prescription meds can have advantage
- Specific Carbohydrate, body ecology diet, elimination diet

## Antioxidants

- Vitamins A,C, and E, carotenoids, selenium
- High dose C to bowel tolerance, potential benefits:
  - toxic metal & pollutant elimination
  - improved immune function
  - increased bile flow
  - increased carnitine production
  - adrenal support
  - improved intestinal ecology
  - stabilization of tetrahydropterin
  - support neurotransmitter production
  - increases glutathione levels
  - keeps folate in active form
  - increases iron absorption
  - safe and effective laxative at high dose

## Dosages

- Vitamin C: 100 mg/kg/day, initial
- Acetyl-L-carnitine: 50-100 mg/kg/day
- L-carnosine: 200-400 mg twice a day
- Pycnogenol: 1-2 mg/kg/day
- Methy B12 injections: 75 mcg/ kg 2-3/wk
- Folinic/folic acid: 400 mcg twice a day
- $\Omega$ 3 fatty acids DHA/EPA 2 gram or higher
- Zinc: 20-40 mg, more depending on lab
- Melatonin: 1-3 mg, 30 minutes before bedtime
- Magnesium: 6 mg/kg/day
- Vitamin B-6: 0.6 mg/kg/day

## Sulfur

- Essential for detoxification
- Liver's two detoxification pathway require
- Taurine, Methionine, Curcumin
- Food source are ginger, onions, garlic, eggs, broccoli, cauliflower, brussels sprouts – not high on kids favorite foods, but worth a try.
- Epsom Salt Baths-1c with  $\frac{1}{2}$  c baking soda for every 6 inches bath water
- Options for supplementation by pills, creams and suppository of N-acetylcysteine glutathione
- High dose ascorbate (vit c) increases body sulfur

## Maintain Methylation Pathways

- Critical for detoxification
- Impaired by toxicants
- Supportive nutrients:
  - B-12- hydroxy, methyl, adenosyl
  - TMG
  - DMG
  - Folinic acid, methylfolate
  - Glutathione
  - Ascorbate (vitamin C)
  - N-acetyl cysteine.

## Methylcobalamin (B12) Injections

- Improves methylation, glutathione, oxidative stress
- helps production and metabolism of dopamine, serotonin, norepinephrine, epinephrine.
- Helps cognitive ability, abstract thinking, attention,
- No good test, best is urine methyl malonic acid
- Side effects – increased energy, hyperactivity, agitation, stinging.
- Parents give the preservative-free, methyl B12 injections themselves
- Oral, under tongue, other forms available

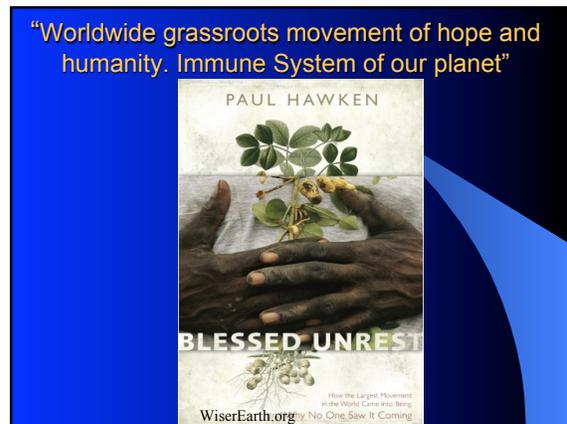
## Heavy Metal Detox

- Toxic metal burden requires specialized predictive and provocative tests, more sensitive and specific
- Experienced Practitioner to assess:
  - toxic burden
  - how quickly to remove toxicants
  - antioxidant and buffering mineral support
  - minimize effects of residual toxic metal
  - monitor lab and clinical progress
- Only used as part of a comprehensive program
- Careful monitoring and physiological support

## The credit is due to the parents- that is where the insight comes from...

Dr. Andrew Wakefield

- Be Grateful.
- Love your children like the whole world depended on it.
- Usually, the sooner you begin, the better the results-you are Dr. Mom and Dr. Dad
- Ask yourself: Should I wait for orthodox medicine to find a solution?
- Work in progress, find your truth. Keep looking for answers and asking questions
- Keep the faith many children do get better



Together, we know enough...to mitigate,  
remediate, and prevent the epidemics of  
autism, chronic illness and lack of  
wellness. If not now, when?

Thank you!!!

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Mequon WI 53092  
262 240-0133

## Environmental Groups

- Save our kids, heal our planet: [www.sokhop.com](http://www.sokhop.com)
- Environmental Working Group: [www.ewg.org](http://www.ewg.org)
- Environmental Health Perspectives Journal: [www.ehponline.org](http://www.ehponline.org)
- Collaborative on Health and the Environment: [www.cheforhealth.org](http://www.cheforhealth.org)
- Toxicology Encyclopedia: [www.toxipedia.org](http://www.toxipedia.org)
- Institute for Children's Environmental Health: [www.iceh.org](http://www.iceh.org)
- We Can Solve the Climate Crisis: [www.wecansolveit.org](http://www.wecansolveit.org)
- Environmental Health News: [www.environmentalhealthnews.org](http://www.environmentalhealthnews.org)
- Our Stolen Future: [www.ourstolenfuture.org](http://www.ourstolenfuture.org)
- Pesticide Action Network: [www.panna.org](http://www.panna.org)
- Coming Clean: [www.chemicalbodyburden.org](http://www.chemicalbodyburden.org)
- Natural Resources Defense Council: [www.nrdc.org/health](http://www.nrdc.org/health)
- Beyond Pesticides: [www.beyondpesticides.org](http://www.beyondpesticides.org)
- Greenpeace Chemical Kitchen: [www.greenpeace.org](http://www.greenpeace.org)
- Alliance for a Healthy Tomorrow: [www.healthytomorrow.org](http://www.healthytomorrow.org)

The information on the following slides provided courtesy of Stu Freedenfeld MD Please see his excellent web site: [www.StocktonFP.com](http://www.StocktonFP.com) for more details and information

## Household and Personal Care

[www.cwg.org/reports/skindeep2/index.php](http://www.cwg.org/reports/skindeep2/index.php) Searchable index for product safety information  
[www.lockinagoodorganics.com](http://www.lockinagoodorganics.com) Personal and house care  
[www.Earthessentials.com](http://www.Earthessentials.com) Skin , personal care  
[www.ecos.com](http://www.ecos.com) [www.ecover.com](http://www.ecover.com) Cleaning products  
[www.seventhgeneration.com](http://www.seventhgeneration.com) Paper, cleaning products  
[www.noods.com](http://www.noods.com) Household and personalcare  
[www.acminet.org](http://www.acminet.org) Source of non-toxic art supplies  
<http://www.thesoftlanding.com> Baby bottles, sippy cups  
<http://www.onestepahead.com> Toys, child needs  
<http://www.greenhome.com> Clothing and bedding  
[www.organicmattressstore.com](http://www.organicmattressstore.com) Bedding and mattresses

## Green Lawns- Safe Neighborhoods

Insect control: Insecticidal soap, diatomaceous earth, and neem products. Insects are vital and killing agents are not selective.  
Weed control: Corn gluten, hot water and vinegar, pull the weeds, or just leave them be and relax  
Fungicide alternatives: Sulfur, baking soda, certain copper products and avoid over watering.

## Green Lawns-Safe Neighborhoods

[www.gardensalive.com](http://www.gardensalive.com) Lawn and garden products Also a resource for garden questions.  
[www.WHY.org/91fm/vbyg](http://www.WHY.org/91fm/vbyg) non-toxic solutions to garden and indoor plant questions.  
[www.pesticides.org](http://www.pesticides.org) Information on dangers of pesticides and safe alternatives  
<http://www.beyondpesticides.org/gateway/index.htm> Safety information of specific pesticides

## Natural Insect Repellants

Neem oil can be taken orally as a mosquito repellent. (Ayush Herbs, [www.ayush.com](http://www.ayush.com) )  
Thiamin 100mg/d may deter mosquitoes.  
Topicals: 2% soybean oil, Vick's Vapo Rub, pure vanilla extract (1:1 with water), cinnamon oil, oil of lemon eucalyptus.  
Enzyme shampoos to get rid of fleas and lice and spray house with 50/50 vinegar and water  
[www.LiceBgone.com](http://www.LiceBgone.com) enzyme products for lice, scabies and crabs

## Natural Insect Repellants

Cockroaches: spread bay leaves and sprinkle a fine dusting of baking soda and boric acid  
Ants: Sprinkle black pepper, chili powder or chalk and brush lavender and olive oil on trails.  
Moths: Cedar chips and lavender oil  
Mice and rats: Lavender oil, cedar oil or camphor will repel them.  
Trade products include Ambermin's Natural Source Bug Repellent, Gone (insect detergent spray), All Terrain Herbal Armor Insect Repellent, Buzz Away, BiteBlock and Outdoor Herbal Spray

## Environmentally Friendly Products

[www.hangersdrycleaners.com](http://www.hangersdrycleaners.com) green dry cleaning  
[www.greenearthcleaning.com](http://www.greenearthcleaning.com) green dry cleaning  
[www.earth911.org](http://www.earth911.org) local recycling centers including fluorescents  
[www.lamprecycling.com](http://www.lamprecycling.com) info mailing used fluorescent bulbs  
Note: Home Depot will recycle fluorescent bulbs

## Whole Foods

[www.ams.usda.gov/farmersmarkets](http://www.ams.usda.gov/farmersmarkets) national listing of farmers' markets.  
[www.localharvest.org](http://www.localharvest.org) local sources of sustainably grown food  
[www.eatwellguide.org](http://www.eatwellguide.org) online directory of sustainably raised meat, poultry, dairy, and eggs, US & Canada  
<http://www.nal.usda.gov/afsic/csa/> Community Supported Agriculture programs (CSA's)  
[www.westonaprice.org](http://www.westonaprice.org) Weston A. Price Foundation  
[www.foodroutes.org](http://www.foodroutes.org) interactive web site to find local farmers, markets, CSA's near you

## Whole Foods

[www.bostonveg.org](http://www.bostonveg.org) vegetarian basics  
[www.realmilk.com](http://www.realmilk.com) info on raw milk:  
[www.westonaprice.org](http://www.westonaprice.org)  
[www.eatwellguide.org](http://www.eatwellguide.org) healthy food markets, farms and restaurants by zip code  
[www.localharvest.org](http://www.localharvest.org) local organic farms farmers markets and restaurants  
[www.ams.usda.gov/farmersmarkets](http://www.ams.usda.gov/farmersmarkets) s  
[www.foodnews.org](http://www.foodnews.org) guide to Pesticides in Produce

## Water

EPA Safe Drinking Water Hotline (800-426-4791)  
Information water safety, contaminants, qualified labs  
<http://www.nrdc.org/water/drinking/uscities/contents.asp> reports contaminants in major cities  
[www.safe-drinkingwater.org/pdf/makesense.pdf](http://www.safe-drinkingwater.org/pdf/makesense.pdf) fact sheets on common contaminants  
[http://www.nsr.org/site/DocServer/Drinking\\_Water\\_and\\_Disease\\_Primer.pdf?docID=559](http://www.nsr.org/site/DocServer/Drinking_Water_and_Disease_Primer.pdf?docID=559)  
Physicians for Social Responsibility info water and health  
Laboratory testing:  
<http://www.doctorsdata.com>  
<http://www.h2otest.com/other.html>  
<http://www.ntllabs.com/homeowner/index.html>

## Resources

<http://www.care2.com/greenliving/make-your-own-non-toxic-cleaning-kit.html> non-toxic cleaning kit  
<http://www.care2.com/greenliving/make-your-own-non-toxic-cleaning-kit.html> home made cleaning products  
[www.NSF.org](http://www.NSF.org) tests on water filter's performance  
[www.nrdc.org/water/drinking/gfilters.asp](http://www.nrdc.org/water/drinking/gfilters.asp) guide to common water filters  
[www.searchawwarf.org](http://www.searchawwarf.org) info on filtration technologies  
[www.nrdc.org/water/drinking/bw/appa.asp](http://www.nrdc.org/water/drinking/bw/appa.asp) tests of several hundred bottled water brands

## Resources

[www.ncsusa.org/publications/greentips/](http://www.ncsusa.org/publications/greentips/) Union of Concerned Scientists  
[www.environmentalobservatory.org/library.cfm?refid=77083](http://www.environmentalobservatory.org/library.cfm?refid=77083) info on plastics  
[www.ozttoxics.org](http://www.ozttoxics.org) Info persistent organic pollutants  
[www.greenbuildingsupply.com](http://www.greenbuildingsupply.com) [www.greenhomeguide.com](http://www.greenhomeguide.com)  
[www.hardwoodinstaller.com/](http://www.hardwoodinstaller.com/) [www.hardwoodscene.com/](http://www.hardwoodscene.com/)  
[www.hardwoodinstaller/finishes-water.htm](http://www.hardwoodinstaller/finishes-water.htm) info on green building supplies  
[www.nurturedfamily.com/catfuzzibunz.aspx](http://www.nurturedfamily.com/catfuzzibunz.aspx)  
[www.diaperpin.com](http://www.diaperpin.com) reusable diapers  
[www.leadcheck.com](http://www.leadcheck.com) test kits for lead, cadmium, mercury, arsenic, nickel and chromium