

Gerri Brewster, RD MPH CDN
www.gerribrewster.com

Nutritional Issues in Autism Spectrum Disorders

April 3, 2008
Brooklyn College
2nd Annual Integrative Nutrition
Therapy Conference for Dietitians,
Nutritionists and Students

Defining Autism

- Current definition of ASD-these defining criteria remain unchanged and generally accepted since 1994*
- The following criteria have evolved since Kanner first described it in 1943. There have been changes made in the definition and it did not appear in the Diagnostic and Statistical Manual of Mental Disorders until the 3rd edition in 1980,
- DSM IV, pub. 1994, include 12 defining characteristics such as onset during infancy or early childhood, lack of responsiveness, gross deficits in language, other behavioral characteristics. It includes a spectrum of pervasive dev. disorders and syndromes such as Asperger's; PDD-NOS, Rett's Disorder, Childhood Disintegrative Disorder.
- Pediatricians must screen for these conditions by age 2.
- PS-Rett's is the only ASD with a known genetic cause, affecting females.

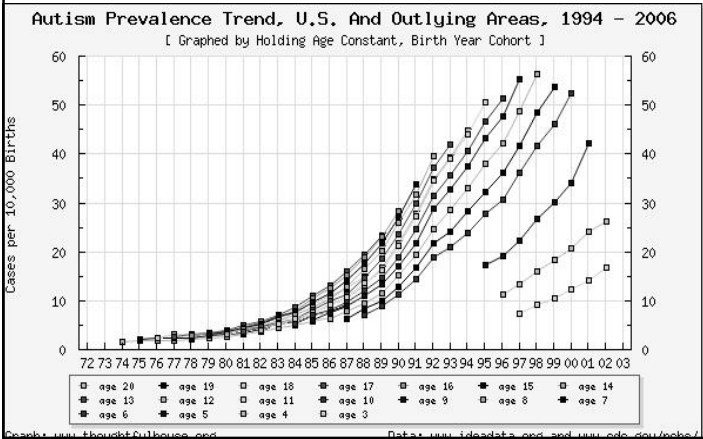
*B Jepson MD, Changing the Course of Autism, Sentient Pub. 2007.

The Statistics

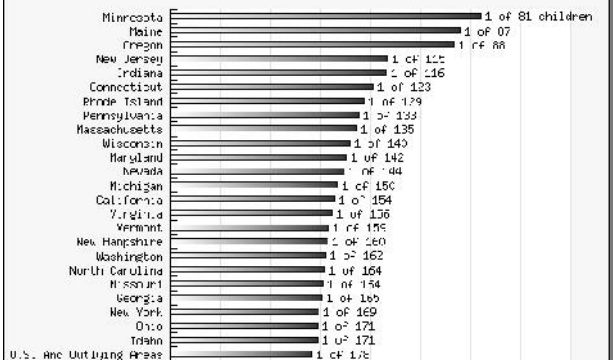
- During the mid 80's more children were being diagnosed
 - The rates rose significantly through the 1990's.
 - California DDS reported a 273% rise from 1987-98
- U.S. Autism Population Estimate 3/22/2008
(ages 3-22) 257,687
U.S. Annual Economic Cost
\$7,730,630,663
Next Diagnosis
7:11 mins

www.FightingAutism.org

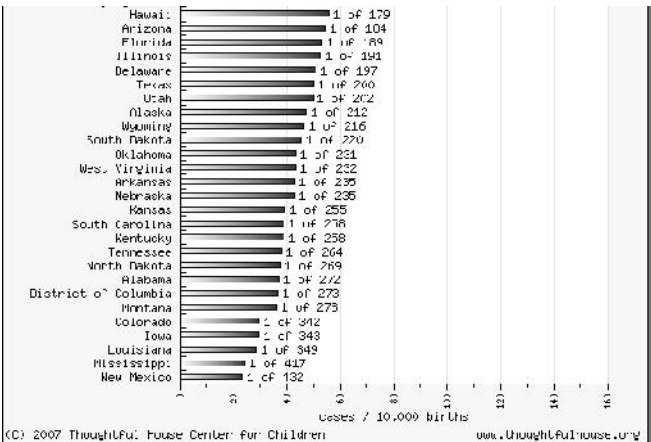
Trends from Fightingautism.org



Autism Prevalence, Public Schools State Rankings, 2006-2007 School Year



continued



The rest of the world

- Reports similar trends.
- A 2006 study out of England found the rate of ASD—combined autism and other ASD to be 1 in 86 children.*
- Iceland, Sweden, Finland, Denmark, Canada, Australia, Japan have reported rising trends.

* Lancet. 2006 Jul 15; 368(9531):210-5

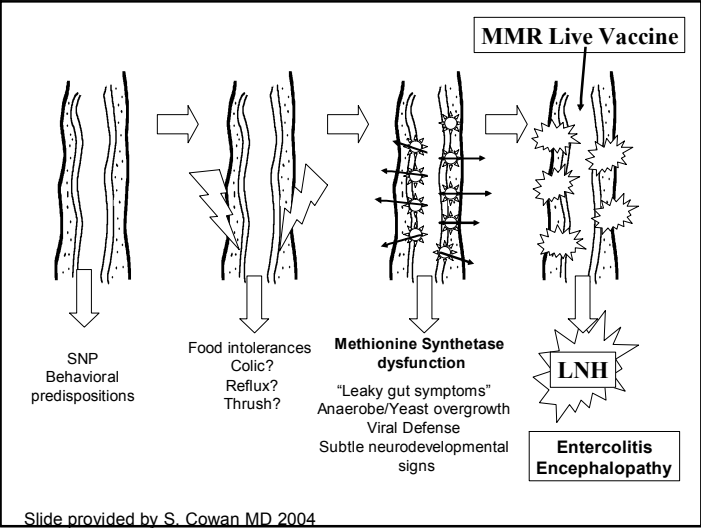
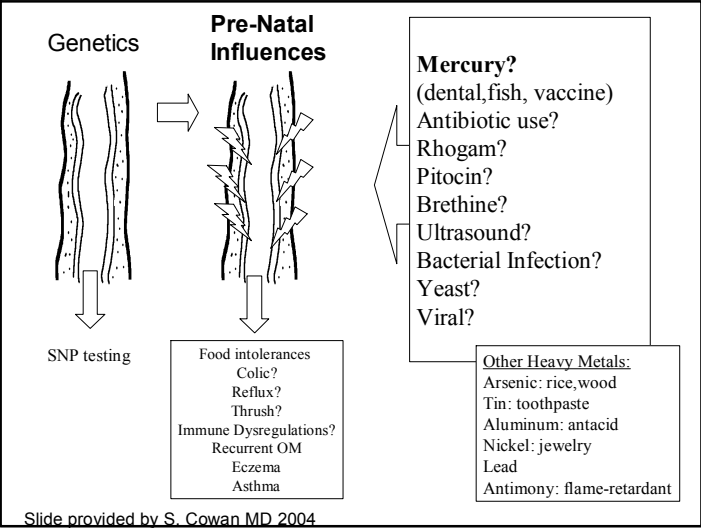
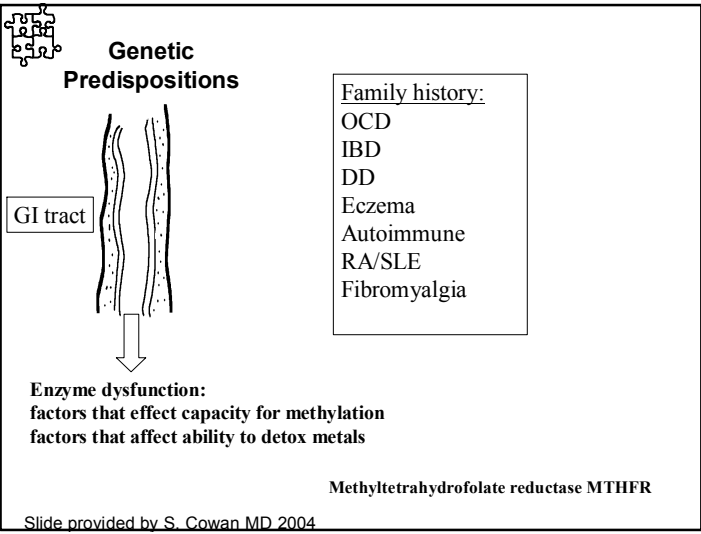
What else is on the rise?

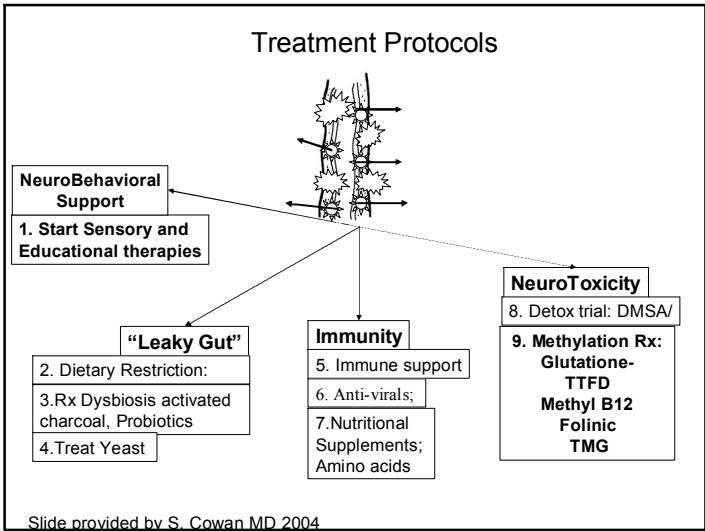
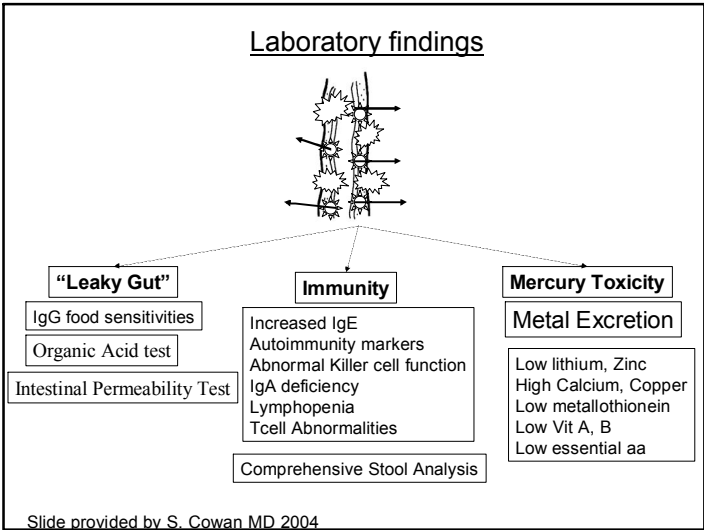
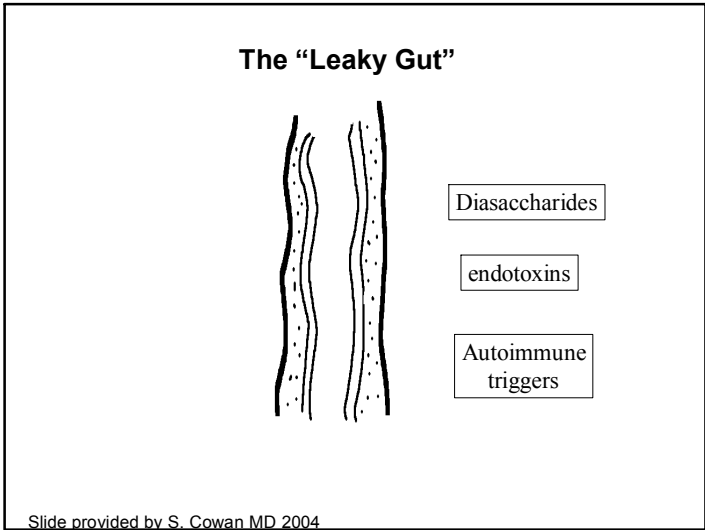
- Children with ASD often present with a subset of immune and neurological issues that include:
- ADHD, a 400% increase over the past 20 years
- Asthma, a 300% increase over 20 years
- Allergies, a 400% over this time period. 20% of children have allergies.
- Dr. Bock cites 4 catastrophic changes:
- Toxins have increased throughout our environment
- Nutrition has deteriorated.
- Vaccinations have increased.
- The ability to detoxify has decreased.

*Ken Bock MD, Healing the New Childhood Epidemics, Ballantine Books, 2007

Nutritional Implications

- What I see in everyday practice are children with gut issues, asthma, eczema, food allergies, sleep irregularities, anxiety and perseverative behaviors.
- Parents with stories related to vaccine trauma after illness, poor dietary histories, and a lifetime of exposure to agribusiness, biotech, chemicals, medications and toxins.





Oxidative Stress

- Children with ASD are often found to have a high oxidative stress load which is defined as an imbalance between oxidation (formation of free radicals from toxins) and redox (reduction and excretion of these through detoxification methods in the body)
- Researchers have found that children with ASD have improper methylation cycles:
- Methylation is a metabolic pathway needed for detoxification and redox.

Methylation

- Needed for: neurotransmitter function, cellular function, myelination of nerve cells, histamine modulation, cellular energy transfer.
- Selective diets and poor absorption of folic acid, methionine, methylcobalamin all impair the methylation process. Certain toxins impair the system.

Sulfation

- A process for detoxification inhibited by oxidative stress, inflammation, and poor absorption of sulfate.
- Abnormal sulfation is implicated in many aspects of autism. Namely,
 - Leaky gut
 - Detoxification abnormalities. Sulfate is needed to bond & eliminate heavy metals.
 - Neurotransmitter dysfunction.

Transsulfuration

- A process whereby homocysteine and P5P, an active form of B6, produces cysteine which serves as a source of sulfate.
- It also produces taurine needed to produce bile salts.
- And, metallothioneins, regulatory proteins for gene expression, metabolism of metals and cellular adaptation to stress.

Glutathione

- Produced from cysteine and needed to detox harmful substances including heavy metals.
- Jill James et al* confirmed original findings that children with autism have low glutathione due to abnormalities in their methionine pathway and have genetic polytypes associated with these abnormalities.

*James et al. Metabolic endophenotype and related genotypes are associated with oxidative stress in children with autism. Am J Med Genet B Neuropsychiatric Genet. 2006 Dec 5; 141(8):947-56.

ARI Survey of Parent Ratings of Treatment Efficacy

		% worse	no diff.	better
Removed Sugar*		2	51	48
Feingold Diet**		2	45	53

* Number of Reports: 3695
** (Number of Reports): 758
From www.autism.com

Diet Modifications Help

- Fruits and veggies provide vitamins, minerals and phytonutrients to facilitate compromised pathways to attain and maintain mental & physical health.
- Protein is needed for amino acids and neurotransmitter precursors.
- Reduction in sugar to prevent B.S. abnormalities contributing to irritability and decreased concentration.
- Artificial colors, flavors & preservatives contribute to undesirable behavioral changes.
- Pesticides and environmental toxins jam up detoxification pathways.

Gluten Free Casein Free Diet

- ARI Survey of Parent Ratings of Treatment Efficacy:
- Casein Free: 49% better
- Gluten Free: 48% better
- Gluten and Casein Free: 65% better

GF/CF Diet Studies

- Goodwin MS, Cowen MA, Goodwin TC. Malabsorption and cerebral dysfunction. J Autism Child Schizophr. 1971;1:48-62.
- Reichelt et al., Biologically active peptide-containing fractions in schizophrenia and childhood autism. Adv Biochem Psychopharmacol. 1981;28:627-43.
- Gillberg, C. (1988) "The role of endogenous opioids in autism and possible relationships to clinical features" in Wing, L. (ed.) Aspects of Autism: Biological Research. Gaskell: London, pp. 31-37
- Fukudome, S-I and M. Yoshikawa (1992). "Opioid peptides derived from wheat gluten; their isolation and characterization," Federation of European Biochemical Societies, Vol. 296, No. 1.:107-111.
- Cade R, Privette M et al. "Autism and Schizophrenia: Intestinal Disorders" Nutr. Neurosci 3 (2000) 57-72. Overseas Publishers Assoc. N.V.
- Knivsberg AM, Reichelt KL, Nodland M. Reports on dietary intervention in autistic disorders. Nutr Neurosci 4 (2001) 25-37.

Specific Carbohydrate Diet

- Invented by Pediatrician Dr. Sydney Valentine Haas
- Further discussed in “Breaking the Vicious Cycle: Intestinal Health Through Diet” by Elaine Gottschall
- www.pecanbread.com
- “Gut and Psychology Syndrome” by Dr. Natasha Campbell-McBride published by Medinform (UK) explores the diet further

Other Dietary Considerations

- Yeast-free
- Low oxalates (see work by Susan Owens)
- Low phenols
- Low glutamate
- Body ecology
- Also see www.autismNDI.com, yeastconnection.com, feingold.org, gfcfdiet.com

Supplements

- Digestive enzymes
- Vitamin B6 and Magnesium
- Essential fatty acids
- Probiotics
- Melatonin
- Vitamin C/TMG/Folinic Acid/methyl-B12
- MSM
- NAC and Alpha lipoic acid

Other Considerations

- Oral Motor Issues
 - Hypo/Hypertonia
- Sensory Integration Issues
 - Taste
 - Texture
 - Smell

Additional Resources

generationrescue.org lists these sites as friends

- Age of Autism Blog
- Autism Yesterday, the movie
- Put Children First
- Autism Research Institute
- National Autism Association
- SafeMinds
- Autism One
- FAIR Autism Media
- ACHAMP
- TACA
- Moms Against Mercury
- No Mercury
- Schafer Autism Report
- Treating Autism

Recent News

generationrescue.org lists these recent news articles

- Discover Magazine reports on biomedical intervention for autism
- Mothering Magazine profiles the Defeat Autism Now! Protocol
- Alternative Medicine Magazine reports on natural autism treatments
- First Coast News: Autism is Treatable
- The Times Union: A Risk or Remedy Debate
- The Advocate Devotes Entire Issue to Environmental Health and Autism
- Des Moines Register: Debated Autism Therapy Gives Hope to Parents
- Latitudes: Lenny's Story: Reversing Autism

Premiere Showing and Panel Discussion of "Autism Yesterday"

Children on the Autistic Spectrum by Generation Rescue

Thursday, April 17, 2008

*7-9 pm

**Mary Lou Meese Theatre,
Fox Lane Campus, Bedford, NY

\$20 pp in advance; \$25 at the door. (Tickets may be purchased in advance by paypal or check)

* Doors open at 6pm; movie to begin at 7 pm.

To purchase your ticket(s), please contact either:

Lisa Rudley at 914.944.7273 or lisarudley@yahoo.com

Sue Bronico at 914-666-6310 or bronicos@msn.com

To find out more information on the movie and Generation Rescue go to
www.generationrescue.org

Directions to Fox Lane Campus at www.bedford.k12.ny.us/directions.html