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.
  - Airplanes are impossible.
  - Women are not logical enough to vote.
  - Autism caused by bad parents.
  - “Down’s is not a person.”

History

- 500 BC: First representation of Trisomy 21
- 1838: First description T 21 by Esquirol
- 1846: “the education of idiots” and extended description of T 21 by Séguin
- 1866: John Down describes the phenotype T 21
- 1932: First suggestion chromosomal origin by Waardenburg
- 1959: Extra Chromosome 21 found by Lejeune
- 1961: Geneticists “mongolism” replaced by Down Syndrome or Trisomy 21; Mongolian People’s Republic requests WHO change name
- 1989: Individualization of the Down Critical Region
- 1990s: First trisomic mouse lines
- 1997: Cold Spring Harbor meeting defining DCR-1
- 2000: Sequencing of Chromosome 21 by Hattori et al.

“We call on all people of good will to ensure that health protection is grounded in a renewed spirituality: every patient is my brother.”
Jerome Lejeune MD 1926-1994

“Dr. Turkel had the nerve to make his claims when everyone knew that children with genetic defects could not possibly be treated successfully.”
Linus Pauling

“...reversions to a primitive racial type”
John Down 1866

“True guilt arises only from an offense against a person, and a Down’s is not a person.”
Atlantic Monthly 1968

1958 T21 Identified

“...we call on all people of good will to ensure that health protection is grounded in a renewed spirituality: every patient is my brother.”
Jerome Lejeune, MD, 1926-1994

May 24, 2012

Norm Schwartz, MD
Milwaukee, Wisconsin
Irrational Bias Against Nutrients

In questions of science, the authority of a thousand is not worth the humble reasoning of a single individual.

Galileo Galilei 1564-1642

- Medical Profession opposed, for no obvious reason, to Dr. Turkel - to detriment of health and well being of T21 individuals
- Dr. Turkel showed that genetic condition of T21 need not be accepted as inevitably leading to permanent deficit and inability to function in society. He provided hope that improvement in functioning is possible

Down Syndrome or Trisomy 21

The specific disease doctrine is the grand refuge of weak, uncultured, unstable minds such as now rule in the medical profession.

Florence Nightingale 1820-1910

Unwarranted medical skepticism and intransigence has unnecessarily doomed legions of Down Syndrome children to lives greatly diminished by submarginal mental and physical functioning. …many of them could have benefitted immensely if their poor nutritional status had been taken into account and been treated properly.

Bernard Rimland, Ph.D 1928-2006
Founder Autism Research Institute

Medical Amelioration of Down's Syndrome Incorporating the Orthomolecular Approach

When I treated my first mongoloid patient 24 years ago, the reasons for the accumulations of fats, fluids, and minerals were unknown. But I did know that all brain cells require proper nutrients in optimal quantities for the specific cell to develop normally. As a medical student, I elected a course in dietetics. It became obvious to me that patients were important therapeutic agents in the treatment of disease, and this has been seeping extended not only to the physical diseases, like diabetes, arteriosclerosis, and allergies, but also to so-called mental illness including retardation.

Orthomolecular Psychiatry, Volume 11, Number 4, 1970

"It is much more important to know what sort of person has a disease, than what sort of disease a person has."

Sir William Osler, MD “Father of Modern Medicine” 1849-1919

Parents, Clinicians, Researchers Linking Science, Observations, Evidence, and Clinical Experience for: Down Syndrome OPTIONS

Optimizing Potential Through Integrative Opportunities Now
Principle-base Medicine
Integrative Medicine 10:5 Oct/Nov 2011

“A therapeutic intervention is fitting the treatment to the individual. In that sense it is like tailoring… measuring and trying it on until you get a good fit…. You don’t always get it the first time.”

Sid Baker, MD

Individual Trisomy 21 Treatment
Based on physiology, lab tests, research, clinical experience, parent observation

- Reach full potential
- Support growth and development
- Normalize physiology and function
- Improve health, decrease infections
- Assist education
- Maintain health through lifespan

Trisomy 21- Complex
- Most common genetic abnormality
- Wide range of physical features, congenital malformations, health problems
- Impact of trisomy 21 for each person is INDIVIDUAL
  - From profoundly impacted to mild
  - In 1930 life expectancy 9 years old, today close to 60
- Multiple genes involved, specific proteins, enzymes, metabolic molecules affecting cell biochemistry
- Need systems biology approach to understand

Emergence Good and Ill Health
- How our gene patterns are transcribed
- How nutrients and phytochemicals in our food speak to our genes
- How environment influences our genes by epigenetics
- How lifestyle and environment are factors altering gene expression

Trisomy 21 Complexity Systems Biology
- Whole is greater than sum of parts
- Complex humans cannot be understood by studying individual genes in isolation
- Gene-environment and gene-gene interactions yield emergent properties
- Complex dynamics of living systems, a new field of research - Systems Biology realizes genetic variability does not fully explain diversity of physiology, DNA regulation, or organ function

Down syndrome—recent progress and future prospects

DS was once thought to be an intractable condition because...
Medical/Health Problems

- Hypothyroid
- Decreased growth 3 mos – 3 yrs
- Immune function
- Muscle tone
- Decreased digestive competence
- Nutrient absorption
- Stomach acid
- Nutrient deficiencies
- Early onset Alzheimer’s
- Goit


Biochemical- Physiological

- Thyroid hormone
- Serine, methionine
- Carnitine
- Thymus, T cell function
- IgG, complement C3 C4, interferon, neutrophil function
- Functional folate, methylation cycle
- DNA repair
- A, B12, C, magnesium, cholime
- Selenium (cofactor glutathione, thryoid)
- Zinc (cofactor 100’s of enzymes)

- Oxidative stress
- Thyroid antibodies
- Copper, cysteine, phenyalanine
- Purine metabolism
- Antibodies- bile duct, perialter cell (stomach)
- Sympathetic response – HBP, arrhythmia, CV
- Imbalance cAMP/cGMP cellular 2nd messengers – problem in cell communication


Can nutritional supplements help mentally retarded children? An exploratory study

Can nutritional supplements help mentally retarded children? An exploratory study

<table>
<thead>
<tr>
<th>Average IQ increase (at least 10%)</th>
<th>Significance (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 IQ points</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Three of the five subjects who were given supplements for both periods showed additional IQ gains during the second 4 months. Three of four children with Down syndrome gained between 10 and 25 units in IQ and also showed physical changes toward normal. Other evidence suggests that the supplement im-

Zinc and Selenium “significantly lowered” Copper, Copper/zinc ration “elevated”

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>0.01mg</td>
</tr>
<tr>
<td>Selenium</td>
<td>20mg</td>
</tr>
<tr>
<td>Copper</td>
<td>175mg</td>
</tr>
<tr>
<td>Magnesium</td>
<td>3mg</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>3mg</td>
</tr>
<tr>
<td>Iodine</td>
<td>500mg</td>
</tr>
</tbody>
</table>

Is zinc deficiency a cause of subclinical hypothyroidism in DS

- The aim of this study was to evaluate if, in Down Syndrome patients, zinc therapy could improve thyroid function
- 52 patients studied, high incidence of subclinical hypothyroidism - 30%
- More significantly, patients with low zinc levels treated with zinc supplementation improved thyroid function, thus reducing the incidence of subclinical hypothyroidism.


Endocrine Deficits in Down Syndrome Patients with Zinc Deficiency

- Najat A. Al-Awadi, Rezik L, Al-Naggar, Sadika A. Al-Awadi
- Cairo Medical Genomic Center (CMGC) West Solayya Health Clinic, Ministry of Health

Overt and subclinical hypothyroidisms are the most common endocrinological deficits in patients with Down syndrome. Hypopituitarism in DS patients is related to some endocrinological and immunological functions. Zinc deficiency has been found to impair insulin sensitivity and metabolic function. This study evaluated the effect of zinc supplementation on thyroid function and GH levels in 60 DS patients. Results showed that zinc deficiency has a remarkable effect on the thyroid function and the growth hormone in patients with DS. We recommend that our patients need further cycles of zinc and neomycin/cicloxein patients has been found (p < 0.001). Low GH values were recorded in hypopituitary DS patients compared to nonhypopituitary patients. On the other hand, IGF-I levels have been found to be high in hypopituitary DS patients (p < 0.001). There was also a significant association between the low zinc levels and impaired thyroid function and GH values (p < 0.001). There was an improvement of
Fetal Down Syndrome Brains Exhibit Aberrant Levels of Neurotransmitters Critical for Normal Brain Development

RESULTS: Fetal Down syndrome brains showed reductions in the levels of serotonin, tryptophan hydroxylase, and dopamine in the frontal cortex. No alteration in the levels of aspartate, glutamate, glutamine, glycine, histidine, serine, or alanine was observed.

CONCLUSION: Serotonin, tryptophan hydroxylase, and dopamine are critical for the acquisition of brain morphologic features, neural and gli proliferation, and synaptic formation. The detected reductions in the levels of these neurotransmitters may indicate potential mechanisms for the observed dysfunctional neuronal proliferation at early gestation years and associated clinical deficits.

Functional genomic analysis of amniotic fluid cell-free mRNA suggests that oxidative stress is significant in Down syndrome fetuses

Using human placental DNA, functional genomic analysis highlighted the importance of oxidative stress, ion transport, and G protein signaling in the DS fetuses. Further evidence supporting these results suggests that there are secondary adverse consequences of DS evident in the second trimester, leading to testable hypotheses about possible antenatal therapy for DS.

Oxidative stress occurs early in Down syndrome pregnancy: A redox proteomics analysis of amniotic fluid

Oxidative stress is thought to occur early in Down syndrome pregnancies, and proteomic analysis of amniotic fluid provides evidence for this hypothesis. Increased levels of oxidative stress markers were observed in amniotic fluid from DS pregnancies, indicating a potential role for oxidative stress in the development of DS.

CHAPTER 22
OXIDATIVE STRESS AND MITOCHONDRIAL DYSFUNCTION IN DOWN SYNDROME

Oxidative stress and mitochondrial dysfunction are key features of Down syndrome (DS), with increased oxidative stress markers and reduced mitochondrial function observed in DS tissues. Mitochondrial dysfunction is thought to contribute to the neurological, cognitive, and behavioral deficits associated with DS. The following sections will provide an overview of the mechanisms underlying oxidative stress and mitochondrial dysfunction in DS, highlighting potential targets for therapeutic intervention.
Abstract

Down's syndrome (DS) is characterized by trisomy 21, which results in an increased risk of congenital anomalies and intellectual disability. This study investigated the association between the presence of congenital anomalies and the severity of intellectual disability in DS. The study sample consisted of 100 DS individuals. The severity of intellectual disability was assessed using the Adaptive Behavior Scale (ABS). The presence of congenital anomalies was assessed using the Down's Syndrome Research Consortium (DSRC) congenital anomaly checklist. The results showed a significant correlation between the presence of congenital anomalies and the severity of intellectual disability. These findings suggest that the presence of congenital anomalies may be a marker for the severity of intellectual disability in DS.
Thyroid Gland: Metabolic Powerhouse
Treat the person – not the numbers

Thyroid hormones regulate stem cells, neurogenesis, migration, neuronal interconnections, synaptogenesis & brain plasticity

Thyroid hormones support:
- Neurogenesis
- Precursor cell proliferation
- Neuronal migration

Thyroid-Brain Crosstalk
Promote Plasticity
Promote Healthy Brain Function
Decrease Neurodegeneration

Hypothyroidism:
Slow reflexes & heart rate, enlarged neck, puffy face, swollen hands & feet

Hypothyroidism:
low basal temp
constipation, dry skin, slow maturation, slow thinking

DS/T21 Thyroid dysfunction*
N=136, “overall hypothyroidism… ~30-40% & may reach 80-90% in early childhood.


Treat the person not the lab numbers.

Basic Good Diet
- Eat as nature intended-real food not food like, processed food, remember 4 rules:
  - Eat food that will rot, before they do
  - Eat foods available > 2,000 years ago
  - Eat low on food chain
  - Don’t eat what you can’t pronounce
- Choose Organic when possible
- Try Juicing, Blending
- Gluten Free Casein free, consider strict elimination
- Avoid fast & processed foods, sugar, additives
- Oil Change to healthy fats- olive, grape seed, coconut
Diet for Detox and 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

IS ORGANIC FOOD WORTH THE EXTRA COST?

Organic Food is More Essential Elements

Organic Food is Superior to Conventional Food in:
- Higher Omega 3 fatty acids
- Increased glutathione levels
- Increased beta carotene, vitamin E
- Increased anti-ox enzymes

Parent's Report-Special Diets
Over 60% of Kids Improved

Better/Worse
10:1 Specific Carbohydrate
17:1 Removed Eggs
19:1 Gluten-/Casein-Free Diet
19:1 Candida Diet
21:1 Rotation Diet
25:1 Removed Sugar
25:1 Feingold Diet
28:1 Removed Chocolate
28:1 Removed Wheat
32:1 Removed Milk/Dairy

Source Autism Research Institute autism.com

Fruit and Soil Quality of Organic and Conventional Strawberry Agroecosystems

John P. Baggs et al., Preston K. Andrews, Jennifer B. Remen, Lynne Carpenter-Boggs, Christopher W. Schakel

Abstract

Organic strawberry farms
- No Pesticides
- Higher quality fruit
- Higher quality soil
- Greater resilience to stress

Parent’s Report—Special Diets
Over 60% of Kids Improved

Better/Worse
10:1 Specific Carbohydrate
17:1 Removed Eggs
19:1 Gluten-/Casein-Free Diet
19:1 Candida Diet
21:1 Rotation Diet
25:1 Removed Sugar
25:1 Feingold Diet
28:1 Removed Chocolate
28:1 Removed Wheat
32:1 Removed Milk/Dairy

Source Autism Research Institute autism.com

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”
**Nutrients**

- Adequate amounts essential to support the body’s complex metabolic pathways
- Deficiency in micronutrients predisposes to toxicity by decrease ability to eliminate toxins
- Sufficiency of buffering minerals, primarily magnesium & zinc, facilitate toxic metal excretion and block absorption
- First morning urine pH in the 6.5-7.5 range suggesting adequate cellular buffering capacity

**Industrial and Agricultural Chemicals**

- Have increased at an almost exponential rate for the past 50 years, ~ 10 new chemicals, introduced each day
- EPA estimates that 87,000 chemicals are in use today
- Plastics industry has grown at the rate of 6-12% per year since mid-1940s
- Annual production in U.S. reaching 85 billion pounds > 338 pounds per person, per year
  
  Colburn Environ. Health Perspec. 2004; 112(9)

**Increased Vulnerability Children**

- Increased due to both rapid development and incomplete defense systems:
  - A developing child’s chemical exposures are greater pound-for pound than those of adults
  - An immature, porous blood-brain barrier allows greater chemical exposures to the developing brain
  - Lower levels of chemical-binding proteins, allowing more chemicals to reach “target organs”
- Rapidly developing organ systems- more vulnerable to damage from chemical exposures
- Detox capacity not fully developed

**Synergistic Toxicity**

- Pb and stress
- Pesticides
- Paraquat and mane - relative risk of Parkinson’s Disease
- Polybrominated diphenylethers (PBDEs) and PCBs
- Heavy metals

Eriksson et al Toxicol Sci 2006 Dec; 94(2): 302-9

**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, l&s 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
**Biomedical Interventions**

Support Detox

- Micronutrients
- Copper/Zinc
- GI Support
- Antioxidants
- Sulfur
- Methylation Support

**Treatment of High Cu/Zinc Ratios**

- Zinc supplement, need to monitor with blood levels, sometime need lots
- Adequate Selenium, molybdenum
- Support Glutathione
- B6/Magnesium
- Optimize Vitamin C dose
- Avoid Sources of Copper
  - Tap water (Cu pipes)
  - Swimming pools and hot tubs (Cu algaecide)
  - Chocolate, Carob, Soy, Shellfish, Liver
- Avoid red/yellow dyes and MSG deplete Zn

**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 tetrahydrobiopterin
  - Support neurotransmitter production
  - Increases glutathione levels
  - Keeps folate in active form
  - Increases iron absorption
  - Safe and effective laxative at high dose

**Gastrointestinal Support**

- Treat constipation/diarrhea
- Digestive enzymes
- Pre and probiotics
- Antifungals, antibacterials, antiparasite treatment - prescription meds can have advantage
- Specific Carbohydrate, body ecology diet, elimination diet

**Maintain Methylation Pathways**

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

**Detoxification Requires:**

- Energy (ATP), energetic burden
- Nutritional support, fiber, sulfur sources
- Antioxidants
- Optimal Copper/Zinc balance
- Vitamin /minerals, co-factors
- Healthy gastrointestinal lining
- Soft stool 2x/day optimal essential to treat constipation (if it is present)
- Good liver function
- Methylation support
- Sauna, epsom salt baths (support)
Curcumin Protective Against Lead Toxicity

- Curcumin treated animals had more glutathione and less oxidized proteins in the hippocampus compared to animals with similar lead exposure without curcumin.
- Retained spatial reference memory (i.e., water maze).
- Curcumin is neuroprotective against heavy metal induced neurotoxicity.


Clean Up Environment

- Water
- 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, biodegradable.
- 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, foil.
- 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 info on safer plastics.
My Approach to Treatment
- Comprehensive, individualized functional, integrative
- Medical therapy based on predictive, sensitive, specific lab testing
- Monitor clinical outcome
- Understand biochemical imbalances to prioritize low risk, high gain treatments.
- Evaluate environmental toxicity
- Engage family, “Doctor Mom & Dad” as colleagues to determine what works best
- Not a single cause, complex, need to think deeply about causes and consequences in Trisomy 21

Multidimensional Treatment
- Asses and correct biochemical imbalance
- Asses amino acid and neurotransmitter sufficiency and provide repletion
- Support vitamin, mineral, and enzyme metabolism
- Support detoxification
- Repair and optimize intestinal function
- Provide immune augmentation
- Provide hormone replacement therapy, including vitamin D, when necessary.
- Physical, occupational therapy
- Education on additional supportive therapies

Options for Initial Lab Testing
- Thyroid:
  - Free T4 T3, reverse T3
  - Antibodies TPO, thyroglobulin
- Basal Temp
- CBC
- Iron, iron binding
- Ferritin
- Vitamin D
- Vitamin A
- Copper/zinc
- Uric Acid
- Selenium
- Iodine
- Lipid panel
- Amino acids
- Organic acids which
- Essential Fatty Acids
- Heavy metals
- Celiac
- Stool analysis
- Immune function
- Oxidative stress markers
- Ammonia

Biomedical Treatment Options
- Multivitamin w B complex, trace min
- Omega w > DHA/EPA
- Buffered Ascorbate (vit c)
- Vitamin D
- CoQ10
- B6
- Magnesium
- Folate
- Flavanoids/flavonols
- Choline
- Carnitine
- TMG/DMG
- EGCG
- Targeted amino acids
- Zinc
- Selenium
- Probiotics
- Digestive enzymes
- Glutamine
- Alpha keto glutarate
- Uric acid
- Homocysteine
- Curcumin
- Ginko Biloba
- Alpha lipoic acid
- Melatonin

Potential Benefits Biomedical Rx
- Promote cognitive function
- Promote growth and development
- Improve thyroid function
- Balance neurotransmitters
- Improve health and immune function
- Support Methylation, folic acid cycle
- Increase glutathione
- Decrease oxidative stress
- Decrease total heavy metal burden
- Decrease pesticides, pollutants
- Maintain function, decrease disability through lifespan

Adult reversal of cognitive phenotypes in neurodevelopmental disorders
- A ray of hope reversing cognitive deficits in adults
- There are now a number of compelling examples, in mice, of reversal of neurocognitive deficits associated with developmental disorders in adults, including NF1, TSC, Down syndrome, Rett syndrome, fragile X syndrome (FXS), and Rett syndrome - possible in some neurodevelopmental disorders in adults
- Mental disorders, including autism, since they suggest that it may be possible to treat or even cure them in adults.
Suggestions

- Be Grateful
- Love your children like the whole world depended on it.
- Usually, the sooner you begin, the better the results.
- Ask yourself: Should I wait for orthodox medicine to find a solution?
- Work in progress, don’t stop looking for answers and asking questions
- Keep the faith many families see significant benefit

If you want to go fast go alone. If you want to go far, go together.

African Proverb

Together, we know enough to begin individualized treatment for trisomy 21.
If not now, when?

Thank you!!!

Norm Schwartz MD
10602 N Pt Washington Rd
Suite 101
Mequon WI 53092
262 240-0133

Environmental Groups

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

Trisomy 21 Biomedical Resources

Blog, Down Syndrome: A Day to Day Guide
- Super Down Syndrome
- gotdownsyndrome.blogspot.com
- riverbendds.org/index.htm
- changingmindsfoundation.org/documents/links.html

Household and Personal Care

www.ewg.org/reports/skindeep2/index.php
Searchable index for product safety information.
www.foodhappensincorporated.com Personal and house care
www.radiantchildren.com Skin, personal care
www.seeds.com, www.ewg.org Cleaning products
www.needto.com Household and personal care
www.drinkmac.org Source of non-toxic art supplies
www.onestepahead.com Baby bottles, sippy cups
www.stepsahead.com Toys, child needs
www.greenhome.com Clothing and bedding
www.organicmattressstore.com Bedding and mattresses

The information on the following slides provided courtesy of Stu Freedendfeld MD
Please see his excellent web site: www.StocktonFP.com for more details and information.
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.

Natural Insect Repellants

Neem oil can be taken orally as a mosquito repellant. (Ayush Herbs, 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 enzyme products for lice, scabies and crabs

Environmentally Friendly Products

www.hangersdrycleaners.com green dry cleaning
www.geenearthcleaning.com green dry cleaning
www.eart911.org local recycling centers including fluorescents
www.bmprecycling.com info mailing used fluorescent bulbs
Note: Home Depot will recycle fluorescent bulbs

Whole Foods

www.localharvest.org local sources of sustainably grown food
www.localharvest.org online directory of sustainably raised meat, poultry, dairy, and eggs, US & Canada
www.ams.usda.gov/farmersmarkets Community Supported Agriculture programs (CSA’s)
www.westonaprince.org Weston A. Price Foundation
www.foodroutes.org interactive web site to find local farmers, markets, CSA’s near you
Whole Foods

- www.bostonveg.org: vegetarian basics
- www.realmilk.com: info on raw milk
- www.westonaprice.org: healthy food markets, farms and restaurants by zip code
- www.localharvest.org: local organic farms, farmers markets and restaurants
- www.gmo.info: guide to Pesticides in Produce
- 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.epa.org/water/drinking/ucities/contents.asp
  reports contaminants in major cities
- www.epa.org/water/drinkingwater.org.pdf: fact sheets on common contaminants
- Physicians for Social Responsibility info water and health
  Laboratory testing:
  http://www.foodnews.org

Resources

- www.NSF.org: tests on water filter’s performance
- www.americanwater.org/water/drinking/afilters.asp: guide to common water filters
- www.epa.org/water/drinkingwater.org/pdf: tests of several hundred bottled water brands
- www.ucsusa.org/publications/greentips/: Union of Concerned Scientists
- www.environmentalobservatory.org/library.cfm?refid=77083: info on plastics
- www.greenbuilding-supply.com: info on green building supplies
- www.greenhomeguide.com: info on green building supplies
- www.hardwoodinstaller.com: info on green building supplies
- www.hardwoodscene.com: info on green building supplies
- www.hardwoodinstaller/finishes-water.htm: info on green building supplies
- www.leadcheck.com: test kits for lead, cadmium, mercury, arsenic, nickel and chromium