

# Stillpoint Center

*Integrative Medicine*

# **Autistic-Spectrum Disorders**

*“Why You Need a Comprehensive Biomedical Approach”*

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[www.mystillpoint.com](http://www.mystillpoint.com)

## **Presentation Disclaimer**

Information contained within this presentation is for general educational purposes only. You need to discuss all treatment and testing recommendations with your child’s personal physician before implementing therapy.

## **Seminar Overview**

- The important role of nutrition, minerals and supplementation.
- Methylation and the use of Methyl-B12 therapy.
- Excitotoxins and the link between heavy metal toxins and methylation.
- What you need to know about heavy metal detoxification.
- Immune system overview.
- What you need to look for on a blood chemistry profile.

## **Introduction**

### **Biomedical:**

- Belief that the majority of autistic-spectrum children (as well as teenagers and adults) are dealing with underlying biological and toxicity disorder.
- Includes children with attention-deficit (ADD) and attention deficit hyperactivity disorder (ADHD).
- Includes children with other neuro-developmental problems.
- Heavy metals, food sensitivities, nutritional deficiencies, chronic infections, immune dysfunction and genetic susceptibilities are at the core of their health problems.

## Introduction

### **Autistic-Spectrum Disorders:**

- More than just a psychological condition.
- Biological problem involving the brain, immune, digestive, hormone and biochemical systems.
- Totally false that there is no hope for recovery.
- Biomedical approach is **ABSOLUTELY** necessary in the majority of cases if recovery is desired!

## Introduction

**“The biomedical approach to autistic-spectrum disorders is no different than any other health condition – the goal is to optimize health potential with the hope that recovery is achieved.”**

## Introduction

- **Biomedical Approach – incorporates many aspects of medicine:**
  - Diagnostic Testing
  - Dietary and Lifestyle Modification
  - Nutritional Supplements, Homeopathics, Herbs...
  - Medications (when necessary)
  - Biomedical therapy blends well with other non-biomedical therapies such as speech, behavioral, auditory processing, etc.

## Bottom Line

**“No one can convince you that the biomedical approach for your autistic-spectrum child is worthwhile. You must come to this conclusion yourself!**

# Introduction

## Biomedical Therapy Options:

- Diets – GF/CF, Specific Carbohydrate, Feingold, etc.
- Supplements – wide variety
- Immune support
- Parasite, yeast, and bacterial infection treatments
- Digestive support
- Biochemical and Genetic pathway support
- Detoxification and/or chelation
- Combination of all of the above!

## *Stillpoint Center for Integrative Medicine – Our Approach*

### Reducing the Toxic Stress

- Stress = Toxins
  - Food, chemicals, heavy metals, infections
- We are all exposed, we are all susceptible.
- ASD kids appear to be more susceptible.
- Easiest place to start is in home.

## Our Approach

### Reducing the Toxic Stress

- Chemical cleaners, detergents, soaps, pesticides, etc.
- Fresh juices for soda pop (excess refined sugar decreases the immune system).
- No more diet soda - it is toxic! (ex: Nutrasweet)
- Biodegradable laundry detergent in place of Tide!
- Perfumes, colognes, scented sprays, etc.
- Explore local health food stores and specialty markets.
- Epsom salt baths, water filters, salt water pool system.

## **Our Approach**

### **Reducing the Toxic Stress**

- “Nontoxic, Natural, and Earthwise” by Debra Dadd
- Far Infra-Red Sauna, ie. Sauna Detox Therapy

## **Our Approach**

### **Reducing Allergy and Inflammation**

- Toxins = Increase potential for allergy and immune sensitivity.
- Allergy = Increase potential for Inflammation.
- Inflammation = Damaging, especially if chronic.
- Examples: Alzheimer’s, Parkinson’s, Multiple Sclerosis – all made worse via neurological inflammation.

## **Our Approach**

### **Assumption**

“Children with Autistic-Spectrum Disorders are dealing with a level of neurological inflammation.”

## **Our Approach**

### **Important Point**

#### **The different phases of treatment:**

- Reducing the Toxic Stress
- Reducing Allergy and Inflammation
- Detoxification
- Neurological Healing

May overlap with some therapies occurring simultaneously.

## Moving Beyond the GF/CF diet

- GF/CF is critical for many, many children.
- Food sensitivities play a significant role in chronic illness, ie. allergy, inflammation.
- We need to broaden our scope of nutrition and whole foods – mother nature knows best!
- It is not just about GF/CF-free cookies, cakes and ice cream.

## How to Get Started

Get a Juicer – and start juicing!

[www.miraclegreens.com](http://www.miraclegreens.com)

## Miracle Greens

### NUTRIENT RICH SUPER FOODS

- Certified Organic Barley Grass Juice Powder 800mg \* Spirulina Powder 750mg \* Chlorella-Cracked Cell 200mg \* Spinach Powder 85mg \* With Octacosanol 2mg Triacosanol 3mg Hexacosanol 135mcg Tetracosanol 780mcg

**NON-DAIRY PROBIOTIC CULTURES MIN. ORGANISMS (AT MFG) 8.5 Billion Units** Lactobacillus Rhamnosus Type A and Type B \* Lactobacillus Acidophilus and Bulgaricus \* Bifidobacterium Longus and Breve \*

### ANTIOXIDANTS

- Vitamin C (Natural Rose Hips) 585mg 975% Acerola Berry Juice Powder 529mg \* Vitamin E (d-Alpha Tocopheryl Succinate) 235IU 783% Bioflavinoids (Citrus) 55mg \* Silymarin (Milk Thistle 80% Extract) 35mg \* Green Tea (60% Polyphenols, 40% Catechins) 30mg \* Grape Seed (95% Proanthocyanidins) 30mg \* Rutin 30mg \* Ginkgo Biloba (24% Ginkgo Flavoglycosides 6% Terpene Lactones) 10mg \*

### ADAPTOGENIC AND METABOLIC HERBS

- Red Raspberry Powder 450mg \* Parsley Juice Powder 450mg \* Ginger Powder (Freeze Dried) 340mg \* Horsetail Stem Powder 170mg \* Royal Jelly (5% 10-HAD) 85mg \* Licorice Root Powder 55mg \* Eleuthero Root Extract 35mg \* Suma (Paffia Paniculata) 35mg \* Astragalus Membranicus 35mg \* Echinacea Augustifolia (Extract 5% Echinacoside) 35mg \* Damiana 35mg

### NATURAL FIBERS

- Apple Pectin 280mg \* Apple Fiber 280mg \* Certified Organic Flax Seed Meal 115mg \*

### HARMONIZING AND SUPPORT HERBS

- Lecithin Powder 99% Oil Free (Non-GMO) 1135mg \* Aloe Vera (Freeze Dried) 450mg \* Yucca Juice Powder 450mg \* Watercress Juice Powder 340mg \* Carrot Juice Powder 225mg \* Certified Organic Beet Juice Powder 115mg \* Nova Scotia Dulce 20mg \* Cactus Powder 20mg \* Stevia 12 mg \*

**NATURAL PLANT ENZYMES** 200mg \* Protease, Lipase, Amylase and Cellulase

**Xango Juice**

**Mangosteen**

**Xanthones**

**Fulvic Minerals**

**Coconut Oil**

# The Body Ecology

([www.bodyecologydiet.com](http://www.bodyecologydiet.com))

## Methylation

- What is it?
- Why is this pathway important.
- How can we affect this pathway to help autistic-spectrum children?

## Methylation

### DNA Methylation

## Methylation

- DNA synthesis
  - New blood cell formation
  - T cells
  - Intestinal mucosa
- Involved in DNA regulation
  - Host
  - Viral
- Myelination and pruning
- Proper glutathione production
- Prevents homocysteine trapping, ie. cardiovascular implications
- Proper immune response to i.e. TB
- Helps control gene expression mutations, ie. mental retardation, schizophrenia
- Supports detoxification
- Membrane fluidity, phospholipid methylation
- Enzymatic reactions requiring methylation
  - Melatonin
  - Neurotransmitter levels : dopamine and norepinephrine
  - Tryptophan methylation: serotonin,

Cancer Research, Vol 56, Issue 5 995-1005, Copyright © 1996 by American Association for Cancer Research  
K Lertratanangkoon, RS Orkiszewski and JM Scimeca  
Department of Pharmacology, University of Texas Medical Branch, Galveston 77555-1031, USA.

## Detoxification

- Glucuronidation
- Sulfation
- Methylation
  - Catechol O methyl transferase (COMT)
  - Phenol O methyltransferase (phenols)
  - Thiol methyltransferase

Amy Yasko, N.D.

## Dennis Grayson, Ph.D.

Associate Professor of Molecular Biology and Neuroscience

### Neuropsychiatric Institute University of Illinois at Chicago

- Down-regulation of **reelin** and GAD67 expression in post-mortem brains of patients diagnosed with schizophrenia and not in post-mortem material obtained from other psychiatric patients (Guidotti et al., 2000).
- To date, **reelin and GAD67 mRNA and protein levels are reduced by approximately 50% in every cortical area, in hippocampi and in cerebella of postmortem brains obtained from patients diagnosed with schizophrenia.** In these same samples, there were no changes in the levels of GAD65 immunoreactivity and mRNA that are expressed in the same neurons that express reelin and GAD67. This suggests the possibility that the genes encoding reelin and GAD67 may be coordinately regulated and that there may be a defect in the regulation of the promoters of each gene that compromises expression.
- Based on data obtained thus far, we suggest that **methylation represents a switch that can be used to turn off reelin expression under appropriate conditions.** We are addressing whether this may also be operative in the regulation of GAD67 and GAD65. The role that methylation plays in regulating gene expression in the nervous system is still under explored. **We know that alterations in methylation can result in mental retardation.** Mutations that occur in methyl CpG binding proteins have drastic consequences that occur postnatally.

*Amy Yasko, N.D.*

## Reelin

- DNA methylation
- Decreased Gaba (anxiety, hyperexcitability of brain)
- Relationship to Schizophrenia
- Alterations in methylation can result in retardation.

## MTHFr Mutation

MTHFr (Methylene Tetrahydrofolate Reductase)

### 2 Genetic Defects (there are many more)

- **C677T** – Elevated homocysteine – Approximately 25 – 30% of general population.
- **A1298C** – Lower enzymatic activity – High percentage of autistic children who have been tested carry this mutation.
- Approximately 100% of ASD kids carry one or both of these mutations.
- Significant correlation between increase risk for heart and cardiovascular disease, as well as autistic-spectrum disorders (autism, ADD/ADHD/PDD) and certain psychiatric conditions.

## Methylation Support

**Methylcobolamin** – sublingual, injection

### Methylation Products:

- Vessel Care (metagenics) – 2 daily (5-THF, B6, Choline, TMG, Zn, Intrinsic Factor)
- **FolaPro (metagenics) – 2 daily (5 – THF) 800 mcg per tablet.**
- **Intrinsic B12/Folate (metagenics) – 2 daily (cyanoB12, 5-THF, Intrinsic Factor).**
- Beyond B12 (longevity Plus) – 1 to 6 daily (methylcobolamin, 5-THF complex)
- TMG (betaine) 500 to 2000mg daily
- Folinic Acid (synonym for 5-THF, but sometimes is the version that needs to be converted to 5-THF) 500 to 1000 mg daily
- B-complex Vitamins, ie. B5, B6, 12
- SAME – 200 to 2000 mg daily



# Methylation Support

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- FolaPro (metagenics) – 2 daily (5 – THF) 800 mcg per tablet.
- Intrinsic B12/Folate (metagenics) – 2 daily (cyanoB12, 5-THF, Intrinsic Factor).
- Beyond B12 (longevity Plus) – 1 to 6 daily (methylcobolamin, 5-THF complex).
- **DMG – 125 to 500mg daily**
- **TMG (betaine) 500 to 2000mg daily**
- Folinic Acid (synonym for 5-THF) 500 to 1000 mg daily
- **B-complex, ie. B6** – 50 to 400mg per day
- SAME – 200 to 2000 mg daily

# SAMe

Activating the Methylation Cycle

# Methylation Support

**Methylcobolamin** – sublingual, injection

## Methylation Products:

- Vessel Care (metagenics) – 2 daily (5-THF, B6, Choline, TMG, Zn, Intrinsic Factor)
- FolaPro (metagenics) – 2 daily (5 – THF) 800 mcg per tablet.
- Intrinsic B12/Folate (metagenics) – 2 daily (cyanoB12, 5-THF, Intrinsic Factor).
- Beyond B12 (longevity Plus) – 1 to 6 daily (methylcobolamin, 5-THF complex)
- TMG (betaine) 500 to 2000mg daily
- Folinic Acid (synonym for 5-THF) 500 to 1000 mg daily
- B-complex (Support Adrenals)
- **SAMe** – 200 to 2000 mg daily
- **Methionine** – 5 to 15 mg per day

# Methylcobolamin (B12)

A beneficial and necessary therapy for many children on the autism-spectrum to increase enzyme pathways that help support detoxification.

[www.drneubrand.com](http://www.drneubrand.com)

- Downloads
- Videos
- BioChat Forum

[www.mystillpoint.com](http://www.mystillpoint.com) – *Methylcobolamin Handout*

# Andrew – before autism

## Andrew - history

- Currently 9-1/2 y/o
- Age of ASD Dx – 3 y/o
- 2 to 1/2:
  - Appeared Deaf
  - No spontaneous conversation
  - Poor eye contact
  - Poor social skills
  - “high pitched screaming”
  - Inattention to surroundings
  - TV/video obsession
  - Echolalia
- Vaccines – vomited and listless after 7 month vaccine series - no apparent neurological problems.
- General Health: few ear infections, periodic digestive upset.

## Andrew – after autism began Before Biomedical Intervention

## Andrew - history

### BioMedical Intervention:

- **GF/CF diet (November 2004)** – slight improvement in spontaneous verbal output and increased conversational interactions, increased eye contact, more aware of surroundings.
- **Methylcobolamin Injections (May 2005)** Huge Gains!
  - Greatly improved eye contact
  - Increased awareness of surroundings
  - More engaged socially, especially with family/mom
  - Greatly improved conversation capacity.
  - More cooperative, follows command appropriately, more willing to assist around the house, ie. chores, clean-up
  - Likes to tease his sister
  - ...and more!!

## Methylcobolamin (B12)

- Opens enzyme pathways for detoxification.
- Injection is best and most effective.
- No other biomedical changes are made during 1<sup>st</sup> 5 weeks of therapy.
- At end of 5 weeks can add other supplements, medications, ie. folic acid, minerals, vitamins, chelators.
- Addition of TMG may be too much Methyl support.

# Methylcobolamin (B12)

Most children improve in 3 areas - Cerebral Cortex Function (90%), Speech and Language Function (80%), Emotion and Socialization Function (70%) with the use of MB-12.

- Main Side Effects: Hyperactivity, Sleep Disturbance, Mouthing of Objects.
- 60 to 70% have positive change noticeable in 1<sup>st</sup> 5 weeks, 20% no noticeable changes until “Parent Designed Report Form” (see [www.drneubrandner.com](http://www.drneubrandner.com)) is filled out, less than 10% need to stop because of intolerable side effects.

## Methylation

- DNA synthesis
  - New blood cell formation
  - T cells
  - Intestinal mucosa
- Involved in DNA regulation
  - Host
  - Viral
- Myelination and pruning
- Proper glutathione production
- Prevents homocysteine trapping, ie. cardiovascular implications
- Proper immune response to i.e. TB
- Helps control gene expression mutations, ie. mental retardation, schizophrenia
- Supports detoxification
- Membrane fluidity, phospholipid methylation
- Enzymatic reactions requiring methylation
  - Melatonin
  - Neurotransmitter levels : dopamine and norepinephrine
  - Tryptophan methylation: serotonin,

**The potential toxic role of thimerosal (mercury preservative) and other heavy metals in this pathway.**

**Important Contributions from Amy Yasko, N.D.**

## Excitatory Chemicals

- **Glutamate** – stimulates excitatory activity of brain cells. Too much causes premature cellular death and neurological inflammation.
- Glutamate (glutamine, glutamic acid)
- Aspartate (aspartame, aspartic acid)
- Cysteine (not N-acetyl-cysteine)

# Glutamate and Calcium

## Consequences of Elevated Glutamate, Other “Names” For Excitotoxins

## Glutamate and Gaba

“In the absence of glutamate, neurons are unaffected by acute exposure to mercury, suggesting that neuronal dysfunction is secondary to disturbances in astrocytes.”

“Coapplication of *nontoxic (whatever that means! – Woeller emphasis)* concentrations of MeHG and glutamate leads to the typical appearance of neuronal lesions associated with excitotoxin stimulation”

Brookes, 1992/Matyja and Albrecht, 1993

## Consequences of Decreased Gaba

### Atherosclerosis v.s. Autism

- Genetic
  - MTHFr
- Infectious
  - Chlamydia pneumonia
  - Bacterial
- Stress
  - Inflammatory Mediators
  - Glutamate
    - Improper Calcium Regulation
    - Improper CO<sub>2</sub> Regulation
- Environmental
  - Cholesterol
- Cardiovascular Inflammatory Disease
- Genetic
  - MTHFr
- Infectious
  - Viral: MMR, Herpes
  - Streptococcus
- Stress
  - Inflammatory Mediators
  - Glutamate
    - Improper Calcium Regulation
    - Improper CO<sub>2</sub> Regulation
- Environmental
  - Heavy Metals
- Neuroinflammatory Disease

# Pancreas

## Thimerosal

**Molecular formula:** C<sub>9</sub>H<sub>9</sub>HgNaO<sub>2</sub>S

**Synonyms:** Merthiolate; Ethyl [2-mercaptobenzoato(2-)-O,S]-mercurate(1-) sodium; Ethyl (2-mercaptobenzoato-S) mercury, sodium salt; Mercuriothiolate; Merfamin; Mertorgan; Merzonin; [(o-carboxyphenyl)thio]ethylmercury sodium salt; Sodium ethyl mercurithiosalicylate; Thiomersalate; Thimerosal; Ethylmercurithiosalicylic acid sodium salt; Merthiolate sodium; elcide; o-(ethylmercurithio)benzoic acid sodium salt; merzonin sodium; SET; sodium ethylmercuric thiosalicylate; thimerosalate; thimerosol; thimersalate; thiomersal; thiomersal; sodium o-(ethylmercurithio)benzoate; ethyl(hydrogen o-mercaptobenzoato)mercury, sodium salt; nosemack; merseptyl; benzoic acid, 2-mercapto-, mercury complex; elcide 75; ethyl (sodium o-mercaptobenzoato)mercury; Elcide; Ethylmercurithiosalicylate-sodium; Sodium salt of (2-(carboxyphenyl)thio)ethylmercury;

**CAS Registry Number:** 54-64-8

**Chemical Structure:**

## Heavy Metal Detoxification

### “What You Need To Know”

#### Heavy Metal Excretors vs Non-Excretors

- **Glutathione status** – high rate of reduced glutathione deficiency in autistic children.
- **Apo E Isoforms** – ApoE2 has better metal binding capacity than ApoE4 – potential risk factor for Alzheimer’s Disease.
- **Metallothionein** – many times low in autistic children.
- **MTHFR Mutation** – approximately 100% of autistic children tested carry this mutation.
- **Methylation Problems** – MTHFR, glutathione, DNA processing, immune function.

#### Chelation Therapy Options

- “To Bind” from Greek word *chele*, or claw.
- Prescription versus non-prescription.
- Many Choices: DMSA, DMPS, EDTA, PCA-rx, NDF, etc.
- Oral vs Transdermal vs Intravenous vs Suppository.
- Sublingual vs Baths.
- Combination of different forms.
- Provocative testing versus just starting therapy

## Chelation Therapy Options

### BE ADVISED:

- All children should have laboratory testing done to minimally evaluate for nutritional deficiencies, yeast, food sensitivities, infections prior to beginning chelation.
- Children should be stabilized as much as possible on vitamin/mineral and overall diet and nutrient support before and during chelation therapy.

## Chelation Therapy Options

**DMSA (dimercaptosuccinic acid)** – FDA approved for lead removal in children.

**Oral: Succimer (chemet)**

- **Available via prescription or special approval from certain supplement companies.**
- PDR (physician's desk reference) – 10mg/kg/dose every 8 hours for 5 days, then reduce to every 12 hour dosing for 2 weeks.
- *ARI (autism research institute/DAN!) – 10mg/kg/dose (not to exceed 30mg/kg or 500mg/dose) every 8 hours 3 days “on” 11 days “off”. Therapy may take months!*
- DDI – Not to exceed 2000mg/dose (personal communication)

## Chelation Therapy Options

**DMSA (dimercaptosuccinic acid)** – FDA approved for lead removal in children.

- Can dose more frequently every 4 hours (5mg/kg/dose). Some doctors advocate smaller doses (1 to 5mg/kg).
- Many different ways to use, ie. 3 days “on” 4 days “off” at smaller doses, ie. 5mg/kg/dose.

# Chelation Therapy Options

## DMSA (continued)

### Provocative Challenge (Dr. Woeller example):

- 5 to 10mg/kg/dose every 4 to 8 hours (usually 8) for 2 days.
- On morning of 3<sup>rd</sup> day have patient empty morning bladder, then administer all doses as single dose (not to exceed 500mg). Collect urine for the next 6 hours.
- Alternate: 20 to 30mg/kg dose 1 hour before breakfast. Then collect all urine for the next 6 hours.

# Chelation Therapy Options

## Oral DMSA Issues:

- Poorly absorbed – 20 to 30%
- Can cause lot's of problems with yeast overgrowth with prolonged use.
- Tummy aches, loose stools, fatigue and lethargy.
- Some indications that it may interfere with Krebs Cycle energy pathways.  
Chemical structure similar to succinic acid.
- Seizure activity enhanced?

# Chelation Therapy Options

## Transdermal DMSA:

- New formulation.
- Same dosing schedule as oral, ie. 3 days “on”, 11 days “off”
- More aggressive dosing 3 days “on”, 4 days “off”
- Same potential Krebs Cycle issues as oral DMSA.

# Chelation Therapy Options

## DMPS (Dimercapto-propane sulfonate)

Is not FDA approved in US. Listed with the FDA as a “Bulk Chemical That May Be Used in Pharmacy Compounding.” **It is not illegal to use.**

- Highly effective against mercury and arsenic. Also, chelates lead, cadmium as well.

### **Oral:**

- 1-3mg/kg/dose every 8 hours 2 to 3 days “on”, 11 to 12 days “off.” Therapy can continue for months.
- Better oral absorption (approximately 40 to 45%) compared to DMSA.

# Chelation Therapy Options

## DMPS (Dimercapto-propane sulfonate)

- Still left with gut problems like DMSA from tummy aches, yeast, etc. with repeated dosages.
- Only available via prescription – depending on pharmacy may be approximately 2-3x the cost of DMSA.

# Chelation Therapy Options

### **Oral DMPS Provocative Challenge (Dr. Woeller):**

- 5 to 10 mg/kg (average 5 to 7.5 mg). On the morning of the challenge empty bladder. Then administer all capsules of oral DMPS as single dose (bolus).
- Take on empty stomach (1 hour before breakfast or 2 hours after breakfast – mixed with juice okay). Then collect all urine for next 6 hours.
- No minerals 24 hours before or during the 6 hour urine collection.
- Generally, ½ to 1 liter of fluid on day of challenge.



## **Chelation Therapy Options**

### **Oral DMPS Provocative Challenge (Dr. Woeller):**

- If doing Transdermal DMPS (TD-DMPS) you will want to do oral challenge on a TD-DMPS “on” day.
- Can restart mineral dosing 24 hours after challenge (doubling dose) and TD-DMPS 48 hours after oral challenge.

## **Chelation Therapy Options**

### **Important Considerations With Regards to Chelation Therapy for Your Child:**

- Important issue to consider is how sensitive your child is. Some children are ultra sensitive. Others can handle more therapy, supplements, etc. without deleterious effects (behavior changes). Knowing this will help to determine what level to begin therapy.
- Should we start slow and build-up, or go right to challenge testing at full dose – each person is different, and there is no absolute one way for each child.
- If unsure – START LOW and SLOW, then build-up doses!
- Example: Start 5 drops every other day for 3 applications, than increase.

## **Chelation Therapy Options**

### **Transdermal DMPS:**

- Apply 1.5mg/kg every other day.
- Rubbed into skin on inside of arms, forearms, thighs.
- Maximum maintenance dose is 60 drops every other day.
- Available only from certain compounding pharmacies – AMT **866-828-8203**, Wellness **800-227-2627**, etc.

# Chelation Therapy Options

## Transdermal DMPS:

- Easy to administer. Once applied can bath in 15 to 20 minutes, get dressed in 5 to 10 minutes.
- A bit smelly!
- Important for parents/caregiver to not touch gel themselves.
- Do not use gloves.

# Chelation Therapy Options

## Transdermal DMPS Issues:

- Initial challenge dosing does not regularly reflect large amounts of excreted metals.
- Easily fooled that child is not heavy metal toxic.
- Most recommendations are to continue therapy for approximately 1 to 2 years.
- Best to avoid excess amounts of minerals on DMPS days. This usually equates to extra zinc, selenium, molybdenum, copper, etc.

# Chelation Therapy Options

## Transdermal Provocative Challenge:

- Apply 2x maintenance dose (ie. if maintenance is 40 drops, challenge dose is 80 drops).
- Then collect urine for the next 12 hours. Wait 24 hours for fecal (stool) metal test.
- Once collected then proceed with maintenance dose every other day.
- Can also do oral challenge with TD-DMPS as the every other day maintenance chelator.

## Chelation Therapy Options

### Side Effects:

- Rash – sometimes in places away from where TD-DMPS is applied.
- Fatigue, Hyperactivity, Irritability.
- Many children will have some behavioral changes approximately 3 to 4 weeks into therapy (DMPS and/or DMSA).
- Chelation in General: allergic reactions, kidney and liver stress, suppression of white blood cells – very rare in my experience.

## Chelation Therapy Options

- Generally, less bowel problems with TD-DMPS compared to oral DMPS and DMSA.
- Always the potential for systemic allergic reactions (rare in my experience) with DMPS or DMSA.
- Sulfa/Sulfite allergies may need to avoid if using DMPS.
- **REMEMBER: Some kids are ultra sensitive so may need to start slow and increase.**

## Chelation Therapy Options

### Common Theme of Chelation Therapy:

“What your child does that drives you nuts as a parent will generally get worse before it gets better” – may last 3 to 6 weeks.

## Chelation Therapy Options

### EDTA (ethylene diamine tetra-acetic acid) Mechanism of Action:

- Lowers ionic calcium in blood – stimulates a hormone which stimulates osteoclastic activity of bones mobilizing calcium from unwanted places, ie. joints, arteries.
- Free Radical Quencher! Helps with excessive tissue adhesion.
- Lowers arterial plaque, decreased platelet adhesion.

## Chelation Therapy Options

### EDTA (ethylene diamine tetra-acetic acid) Mechanism of Action:

- Helps resuscitate mitochondria, increase ATP.
- **Helps to excrete lead, aluminum, and other metals.**
- May help to bind metals in the gut so that they are not absorbed if using non-PEGlyated form.

## Chelation Therapy Options

### EDTA (Oral)

- Oral forms of EDTA are described as being poorly absorbed, but many doctors and parents report good success in taking EDTA for heavy metal detoxification support:
  - **BioChelat** – oral NaEDTA, CaEDTA – 5 to 20 drops 1 to 3x/day
  - **Liposomal EDTA** (GeroNova/Bio-Immunosciences) – PEGlyated EDTA with Lipoic Acid.
  - **Suppositories** (Detoxamin)

## **Chelation Therapy Options**

### **Detoxamin ([www.detoxamin.com](http://www.detoxamin.com)):**

- EDTA suppository in a base of cocoa butter.
- Takes approximately 60 to 80 minutes to completely dissolve.
- Can apply at night.
- “30 Detoxamin suppositories are medically equal to approximately ten I.V. EDTA treatments”
- Can call for support at **877-656-4553**.

## **Chelation Therapy Options**

### **PEGylated Liposomes: Polyethylene Glycol**

- Liposomes are phospholipid capsules that protect enclosed drugs from degradation.
- Liposomes are able to penetrate Blood Brain Barrier and Intestinal Mucosa.
- Liposomes are able to concentrate in disease tissues.
- Liposomes can stimulate immune activation, ie. antibodies. Could be problem if concentrating in liver, kidney, etc.
- PEGylated forms protect against this problem.

## **Chelation Therapy Options**

### **PEGylated Liposomes: Polyethylene Glycol**

- Pegaflo Detox (Biomolecular Sciences) – Combines EDTA, Phospholipids, and R-Lipoic Acid.
- Potential Benefit of slow release of EDTA (+72 hours)
- Dosage: 1-2 teaspoons 1-2x/day mixed in cranberry, pineapple, or lemon juice.

# Chelation Therapy Options

## BioChelat

- 5 to 20 drops 1 to 3 times per day.
- Well tolerated, gentle
- Can use along with other chelators, ie. DMPS

# Chelation Therapy Options

## EDTA (Baths)

- Putting EDTA in bath water can be used as a detoxification support. Usually 1 – 6 teaspoons along with 1 cup Epsom Salt Bath.
- Beyond Clean – [www.longevityplus.com](http://www.longevityplus.com)  
Proctor and Gamble did extensive research on skin applications for heavy metal detoxification, esp. Iron.
- **Some concern that you may need to use distilled water because of potential inhibiting effect from regular bath water that contains minerals.**

# Chelation Therapy Options

## EDTA (I.V.)

- Calcium EDTA – some advocate push 3 to 5 minutes.
- Sodium EDTA – apparently risky to do push if not as infusing with calcium at same time.
- Need to work with a physician very familiar with I.V. EDTA chelation.

# Chelation Therapy Options

## Amy Yasko Program:

- [www.holistichealth.com](http://www.holistichealth.com); [www.autismanswer.com](http://www.autismanswer.com).
- Approaches Autism from a Neurological Inflammation standpoint – Glutamate and “Excitotoxins”, Heavy Metals and Viruses.
- RNA “Nutri-switch Formulas” for unlocking cellular bound metal and viruses.
- Her program can incorporate other chelator’s as well, but it is generally recommended not to use the RNA products Metals I, II, and III at the same time.

# Chelation Therapy Options

## Other Therapy and Support

- **Glutathione** – transdermal lotion (2 to 3x/day), oral 250 to 500mg twice daily (questionable absorption), liposomal ([www.wellnesspharmacy.com](http://www.wellnesspharmacy.com)) – ¼ teaspoon per 30 lbs body weight 2x/day.
- **NAC (N acetyl cysteine)** 500mg – 1 to 2/day
- **Methylation Support** – TMG 500 – 1000mg daily, Folinic Acid 400 to 800mcg daily, Methylcobolamin Injections ([www.drneubrand.com](http://www.drneubrand.com)). Dr. Yasko's protocol addresses this area comprehensively as well.

## Chelation Therapy Options

- **NDF** (nanocolloidal detoxification factors) – clustered cell wall chlorella. Reports from company ([www.bioray2000](http://www.bioray2000)) state has high affinity for mercury. Laboratory test data shows most of excretion through the urine.
- **Metal Free and PCA Rx** – polypeptide blends with reported metal binding capacity.
- **Magnetic Clay Baths** – Reported to pull toxins through the skin. Parents report that water appears dark after bath.
- **Magnet Therapy** – [www.magnetico.com](http://www.magnetico.com). Mattress magnet pads to help offset the loss of magnetic pull on the body. Their research shows when combined with DMSA helps to enhance the excretion of mercury.

## Mineral Supplementation

- **TD-DMPS** – every other day at least 24 to 36 hours after last TD-DMPS dose and no sooner than 12 hours from next dose (adapted from Buttar recommendation)
- **Oral DMPS or DMSA** – best to avoid during the days “on” the medication. Need to aggressively mineralize after the 3 day cycle.
- If using oral EDTA, ie BioChelat – can do every day, but if following Buttar's will use oral and TD-DMPS on same day, and mineralize on the “off” days.

## **Urine Essential Elements Mineral Supplementation**

- Urine Essential Elements > 97.5<sup>th</sup> percentile (DDI).
- Too low if below < 50<sup>th</sup> percentile on Urine Essential Elements (DDI).
- 10/1 zinc to copper on Urine Essential Elements.
- < 16<sup>th</sup> percentile double minerals.
- < 2.5<sup>th</sup> percentile triple minerals.
- <2.5<sup>th</sup> percentile (3 or more) need to stop and mineralize aggressively.

## **Mineral Supplementation**

- **E-Lyte (Ultra Trace Mineral Set #1-9)** – can order from Emerson Ecologics at **800-654-4432** – use **STILLPOINT** access code.
- **Morning Star Fulvic Acid Minerals** – 1 to 2 capfuls (1 ounce) daily.
  - Vital Earth Minerals carries Morning Star

## **Testing for Metal Toxicity is Problematic – To Chelate or Not to Chelate!**

- Not 100% full proof – this means chelation therapy in many cases is implemented because it makes sense clinically.
- Chelation therapy is implemented in many cases because we see it working in so many kids.

## **Chelation Therapy Options**

### **Testing: Every 2 Months – Essential!**

- Standard Blood Tests (CBC, Liver/Kidney, etc.)
- Blood Minerals (Whole, Red Blood Cell).
- Urine Essential Elements and Toxic Metals via challenge.



# Chelation Therapy Options

**Optional – Can be helpful throughout chelation process.**

- Hair
  - Fecal
  - Comprehensive Stool
  - Organic Acid Test
- Personal Communication with DDI – Do not feel fecal testing is representative of what is being chelated with DMSA, DMPS, or EDTA. Too much potential for environmental influence.

## What Do Metal Tests Mean?

- There is no test that absolutely tells the level of heavy metals stored in the body.
- You can get an idea about the presence of heavy metals, but no absolute total value.

## What Do Metal Test Mean?

### HAIR

- Gives an idea of past exposure and what potential has been in circulation for the past 6 weeks.
- Cheap, non-invasive and easy to get.
- Autistic patients generally show low levels of heavy metals compared to neuro-typical patients.
- Counting Rules? May be helpful.

## What Do Metal Tests Mean?

### FECAL (stool)

- Gives an idea of environmental exposure via food, air, and water.
- Natural route of heavy metal detoxification is primarily via the liver.
- Levels on fecal test DO NOT necessarily indicate what is being detoxified from OUT of the body.
- In through the mouth, out through the rectum.

## What Do Metal Tests Mean?

### FECAL (stool)

- DDI (personal communication) feels that stool testing an inferior test to perform (compared to urine) when chelating because most chelator-metal complex is water soluble through the kidneys.
- DDI (personal communication) in their experience when test show elevated levels of metal, ie. mercury above baseline while doing chelation was from environmental contamination.
- **It is possible that with prolonged chelation could be looking at deep seeded metals being detoxified via the stool.**

## What Do Metal Tests Mean?

### Blood

- Normal most of the time unless have had recent or ongoing exposure.
- Blood Immunology (antibody) testing can give an idea of toxicity – difficult in some kids because production of antibodies are low output.

## What Do Metal Tests Mean?

### Urine

- Preferred test for challenge testing.
- Indicates what is coming out.
- Gives an idea of what the body burden maybe, but not 100% all the time.
- Does not indicate how much is left.

## Dr. Woeller's Approach

- **Step #1** – Testing Recommendations (organic acid, metals – hair, fecal, sometimes urine minerals, blood chemistry, blood minerals, etc.)
- **Step #2** – Methyl-B12 injections or baseline supplements (ie. minerals, vitamins, glutathione), diet and nutrition.
- **Step #3** – Test review, follow-up treatment recommendation, supplement revision as needed.
- **Step #4** – Detoxification, chelation support if indicated.
- **Step #5** – Ongoing support.

# Chelation Therapy

Chelation therapy for yourself and/or your child needs to be supervised by your personal physician. Information presented from this lecture is for general information purposes only. Do not attempt to perform chelation therapy on your own.

## Immune System Overview

### “What You Need To Know”

## Immune System Overview

### Innate

- Skin
- Mucosal Surfaces
- Body Fluids, pH
- Macrophages, Neutrophils
- Natural Killer Cells
- Complement
- Other serum proteins

### Adaptive

- T-Cell
- B-Cells
- Antibodies – IgG, IgE

## CBC w/Differential Interpretation

### Stem Cells

#### Leukocytes

- Monocytes
  - >Macrophages
- Polymorphonuclear Granulocytes (PMN's)
  - >Neutrophils (Neutral Dye)
  - >Eosinophils (Acidic Dye)
  - >Basophils (Basic Dye)
  - >Mast Cells (Similar to Basophils)

## Stem Cells

Leukocytes

- Lymphocytes
  - >T-cells
  - >B-cells

## Immune System Overview

**White Blood Cell Count** – gives the numbers and types of Leukocytes in the blood

### General Rule:

- Increased Lymphocytes (acute) = virus
- Increased Neutrophils, ie. Polys = bacteria
- Increased Eosinophils = allergy, helminths
- Lymphocytes and Neutrophils about equal = chronic virus and/or bacteria

## Immune System Overview

### B-Cells (lymphocytes)

- Antibodies: IgG, IgM, IgA, IgE
- *Bone Marrow*

### T-Cells (lymphocytes)

- CD4 (T4) – Helper
- CD8 (C8) – Cytotoxic & Suppressor
- Controls response of B and other T-Cells
- Th1 and Th2
- *Thymus Gland*

## Immune System Overview

Antibodies (aka – immunoglobulins)

- **IgA** – Most abundant in mucosal secretions.
- **IgM** – 1st produced against antigen, ie. infection
- **IgG** – 75% of all antibodies produced. Only Ig passed in breast milk or to cross placenta.
- **IgE** – circulates at a low level. Triggers allergic responses, protects against parasites/worms.

## Immune System Overview

**IgM** – Marines (first responder)

**IgA** (auxillary force which assist the marines)

**IgG** (ground forces which provide long-term support)

\*\*Exception is in the mucosal surfaces = sIgA (admiral of the seas) is predominant. Called **Secretory IgA**.

## Immune System Overview

### T-helper 1

- Helps defend against viruses, fungi, parasites, yeast, intracellular organism, ie. Lymes

### T-helper 2

- Helper to B-cells in making antibodies.

## Immune System Overview

- **Th1** – directs assault on infected cells.
- **Th2** tries to stop the invasion before it happens.
- Th2 drives a lot of the allergic responses to foreign organisms.

**What is the control mechanism over these reactions?**

## Intestinal Immune System

### Secretory IgA

The intestines are the largest immune organ in the body that directs immune interactions througout the body.

**THINK: Leaky Gut!!!!**

# Immune System Overview

## Cytokines

- Chemical factors that control immune responses between B-cells, T-cells, macrophages.
- Ex: Interferons, Interleukins, TNF-alpha, **IL-6**

## Immune System Overview

- IL-6 – helps control inflammation and B-cell formation, induces fever.
- IL-6 – along with TNF are fatigue causing cytokines, but they also create inflammation.
- IL-6 - stimulates the pituitary to release ACTH.
- ACTH creates shifts in adrenal response via production of cortisol.
- Chronic stimulation of ACTH may create issues with sleep, blood sugar control, tissue repair, electrolyte imbalances, immune response, DNA/RNA synthesis, etc.

## Low Dose Naltrexone

- Opiate antagonist at full dose – 50 to 150mg a day.
- Opioids can have cytokine modulating effects on immune cell receptors.
- They operate like cytokines (interleukins and interferons).
- At low doses (1/10<sup>th</sup> the usual dose) increases immune response against cancer and other autoimmune diseases.
- Probably causes a Th2 to Th1 shift.

## Low Dose Naltrexone

- LDN – originally used by Bernard Bihari, M.D. for Multiple Sclerosis, Cancer and Chron's.
- LDN at low doses causes partial blockage of opiate receptors creating a compensatory increase in natural endorphins in the body which have an immune enhancing effect.

## Low Dose Naltrexone

- McCandless – informal study on 15 patients.
- 8 reported positive results – better behavior, mood, language.
- Side Effects – sleep disturbance (first few days), hyperactivity – but the most consistent change has been happiness and good mood.
- Doses – 3 mg, but recommended to start at ¼ to ½ dose.

## www.mystillpoint.com

- **Website for Stillpoint Integrative Medical Associates:**
  - *Kurt N. Woeller, D.O.*
  - *Nicola McFadzean, N.D.*
  - *Tracy Tranchitella, N.D.*
- Health Articles
- New Patient Paperwork
- Patient Handouts
- Supplement Ordering
- Video & Powerpoint Presentations

## Heart to Heart

The biomedical approach to autistic-spectrum disorders is a lot of work!

There are many things to consider:

- Time
- Education
- Money
- Confusing information
- Conflicting information
- Lack of support from medical community

## Heart to Heart

### What you need to do:

- Begin somewhere (you already are!)
- Implement something (diet, vitamins)
- READ, READ, READ!
- Keep an open mind
- Patience, Practice, Perseverance!

## Heart to Heart

### What you need to do (continued):

- Ask questions
- Be part of your child's health care team – do not stand on the sidelines.
- Hope, pray, never give up!

## Heart to Heart

**“No one can convince you that the biomedical approach for your autistic-spectrum child is worthwhile. You must come to this conclusion yourself!”**

### Lost





# Home Again!

