

*Treating Autism with  
Biological Interventions:*

*A Mother's Success Story*

*By: Lori Knowles*

# Who Am I and Why and I Here?

- Just a DETERMINED Mom
- My fourth child Daniel was diagnosed with Autism at age 2.5 years
- Through intense pursuit of knowledge, I learned how I could help my child and become his Advocate
- After 4 yrs of interventions, at age 6.5, Daniel is considered recovered
- Tell my story to educate and inspire hope
- Manager of *New Beginnings Nutritional*

Who is ...

*New Beginnings*

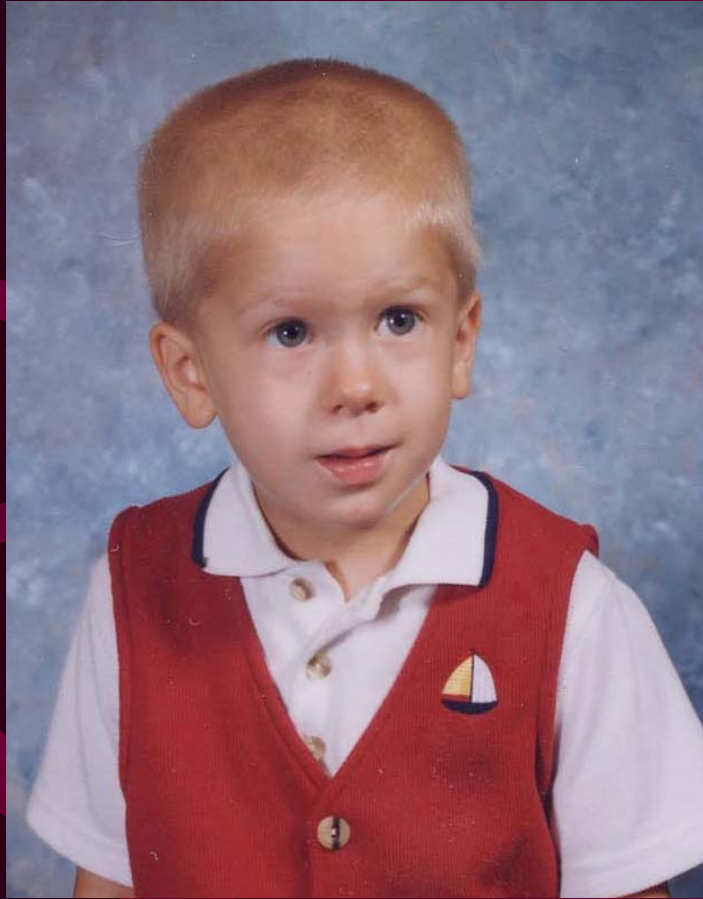
NUTRITIONALS

Helping Parents Make a Difference

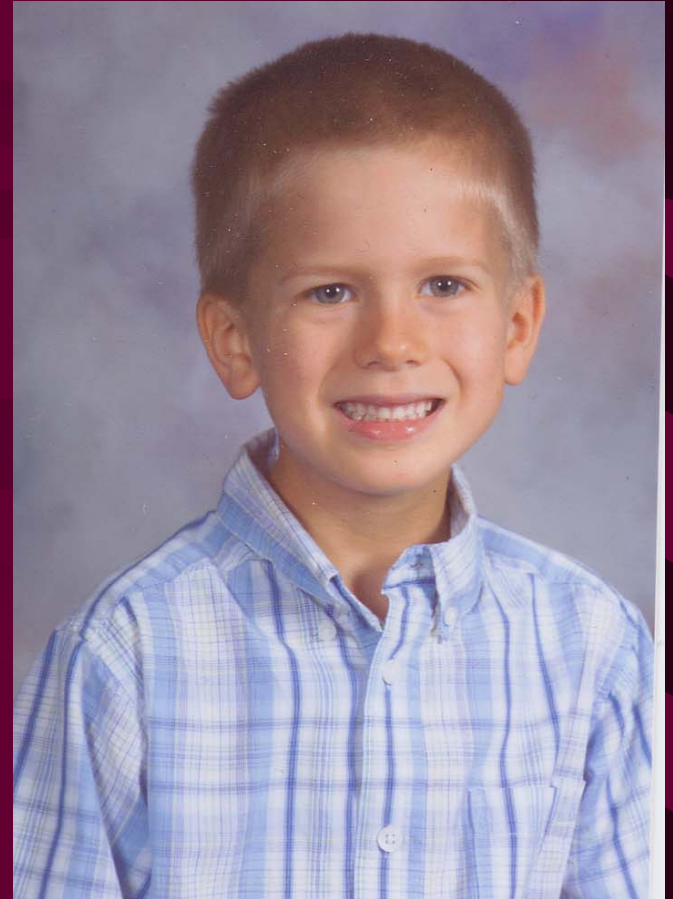
?

- *A company started by Dr. William Shaw in 2003 created to provide high quality, potent, pure and absorbable nutritional supplements for children with autism and special needs.*
- *Provides food and dietary supplements that are free of wheat, dairy, harmful chemicals and other common allergens.*
- *Carefully selects supplements to help with nutritional deficiencies, detoxification, gastro-intestinal and immune function.*
- *Offers personalized customer service and support by parents of children with autism who can help support you in the area on nutritional supplement therapy.*
- *A company that keeps current with new autism research and is always updating and adding to their products line.*

# Meet Daniel



Age 3



Age 6

# Video – 4 scenes

- Daniel in therapy at 2.5 yrs
- Testimony of Speech Therapist - who observed Daniel before and during gfcf diet implementation
- Testimony of 1<sup>st</sup> grade Teacher
- Daniel at 7 years – In classroom
- Recent Interview with Daniel

18 months



# Daniel's 2<sup>nd</sup> Birthday





26 months



28 months



# Warning Signs

- Late to crawl (12 months)
- Late to walk (14 months)
  - Slow to speak
  - Losing words

# Other Warning Signs

- Spaced out
- No interest in others
- No normal play
- Poor receptive / expressive language
- Unexplained crying spells
- Excessive drooling
- Video-aholic
- Trouble transitioning
- Sensitive to sunlight
- Does not point
- Spatially insecure
- Poor muscle tone
- Sensory issues

# Dealing With the Truth

- Pediatrician Not Helpful
- Information from the internet
  - Need to Grieve
- Appt. to get a Diagnosis

# Going From Depressed to Determined

- Early Intervention Therapist
- Dr. Shaw's Book - Biological Treatments for Autism and PDD
- Jacquelyn Mc Candless's Book "Children with Starving Brains"
  - DAN! Physician
    - Lab Testing

# What you should know about testing through the Great Plains Laboratory

- **Main focus is Autism and related disorders**
- **A pediatric-focused laboratory** – reference ranges account for both children and adults preventing false high and low values.
- **Cares about accuracy:**
  - Participates in proficiency testing with other labs
  - Runs in-house split samples to check internal accuracy
  - Reference Ranges verified by scientific literature and in-house studies of both normal and abnormal populations

# Dietary Interventions

# The Gluten/Casein Free (GFCF) Diet

## Does It Really Work?



- How could eating wheat and dairy products possibly be bad for my child?



# The Opioid Peptide Theory

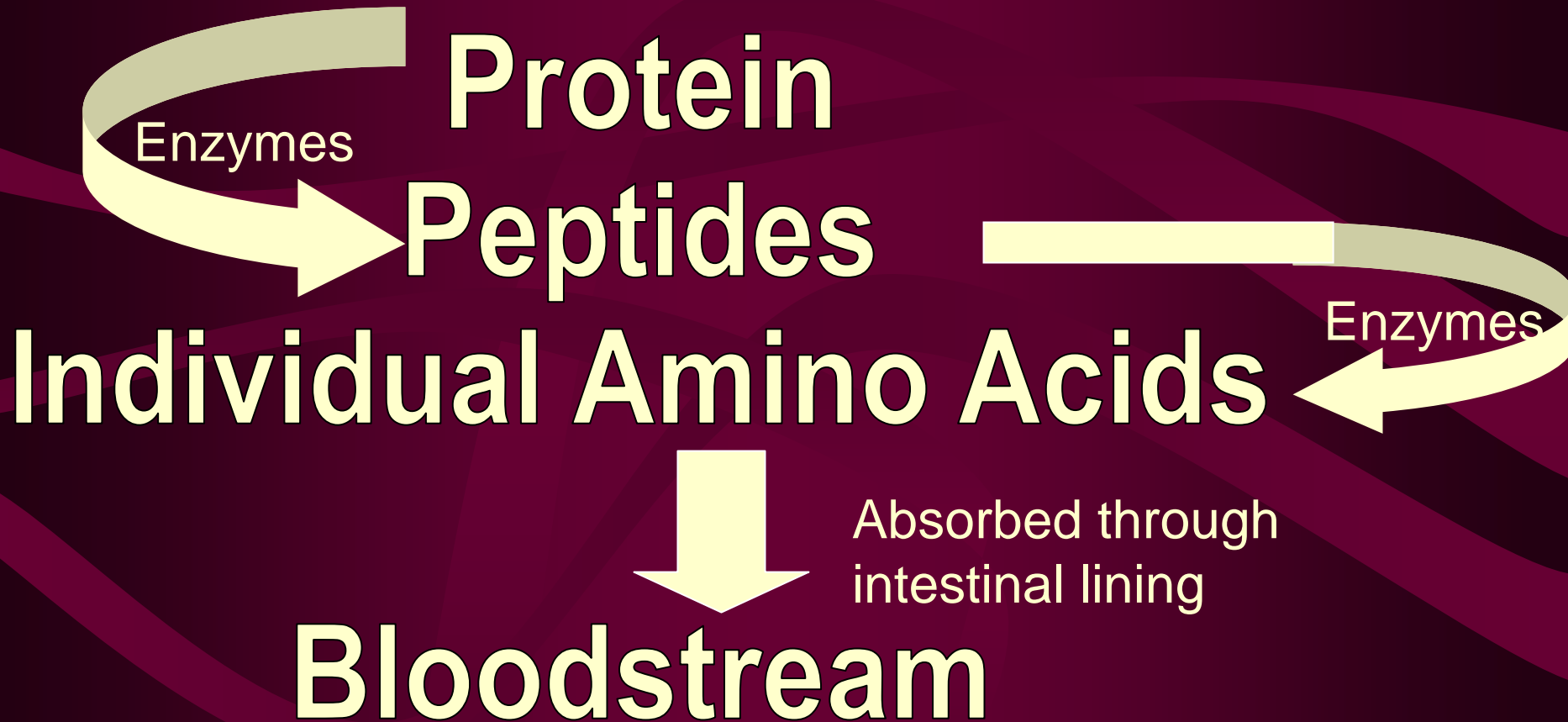
## What does this mean?

### Protein Digestion is Impaired

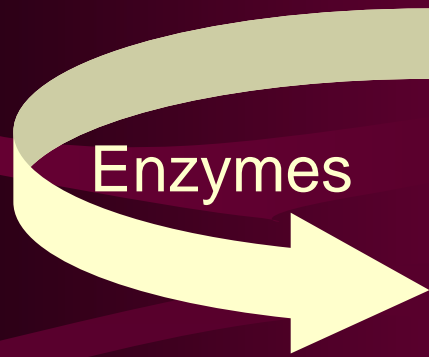
- **Casein** - The major protein in *milk*.
- **Gluten** - The major protein in *wheat*.

Proteins are made up of smaller molecule combinations called amino acids

# Normal Digestion

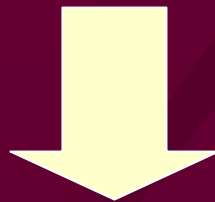


# Abnormal Digestion



Insufficient  
enzymes

Protein  
Peptides



Peptides are not broken down  
to individual amino acids.

Bloodstream

# Abnormal Digestion (cont.)

- Excessive amounts of peptides are measurable in the urine
- These peptides are called-  
**Gliadorphin** from Gluten  
**Casomorphin** from Casein
- Creates an opioid effect (like morphine) by binding to opiate receptor sites in the brain and gut.
- Studies how higher levels in urine in Autism

# Symptoms can include:

- Spaced-out effect
- Constipation/diarrhea
- High pain tolerance
- Negatively affect brain function (speech and auditory integration)
- Limited food choices

# Does the gluten and casein free diet work?

- Research studies of Cade, Reichelt, and Shattock showed improvement in approximately 80% of autistic individuals who **STRICTLY** removed gluten and casein from their diet.
- The younger the child, the more dramatic the improvement.
- Many AD(H)D individuals have also benefited from the diet.
- Eliminate **Soy** in the diet because the protein structure is similar to gluten and casein.

# How do I know if my child will benefit?

- Do they exhibit any signs? (spaced-out, high pain tolerance, limited food choices, constipation/diarrhea, etc.)
  - Have urinary peptides and IgG food allergies tested.
- Do a strict trial GF/CF/Soy free diet for at least 4 months.

# Daniel's Progress on the Diet

- Marked improvement in receptive/expressive language
- Spaced-out effect gone
- Crying spells eliminated – happier child
- Increased awareness of others
- More effective therapy sessions
- Increased interest in toys
- Constipation disappeared
- Decrease in sensory issues
- Cured chronic sinus infections & asthma
- Gluten infraction caused serious regression



# Possible Causes of Abnormal Digestion

- Genetic predisposition to immune system dysfunction
- Vaccine damage
- Leaky gut (yeast and food allergies)
- Heavy metals (mercury)
- Body of scientific research clearly identifying root causes is growing.

# How can I possibly do this diet?

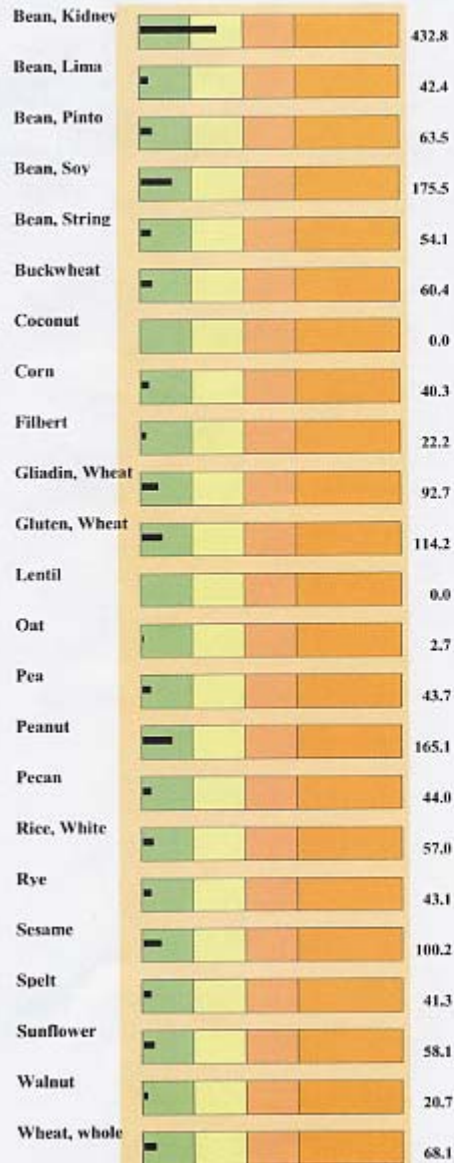
- Do a Food Allergy Test
- On-line resources
- Local support groups
- Start gradually (first remove casein, then gluten)
- Start with replacing the favorite foods
- Be determined! – this food may be poison to your child.
- Be prepared for withdrawal symptoms
- Give it at least 4 months (100%) before deciding to quit.
- Avoid hidden ingredients
- Avoid contamination with utensils, etc.
- Many children eat better once gf/cf
- It gets easier with time

# What about Food Allergies?

- IgG and IgE allergy tests can be helpful
  - IgE** – Traditional Allergies (immediate, hives, etc.)
  - IgG** – Food Sensitivity (delayed reactions, behavior)
- Often see elevated IgG antibodies to milk/cheese/gluten.
- Improvements seen when other problem foods removed.
- Some have phenol sensitivities (brightly colored fruits/vegetable, food dyes, etc.)

# Food Allergy Test

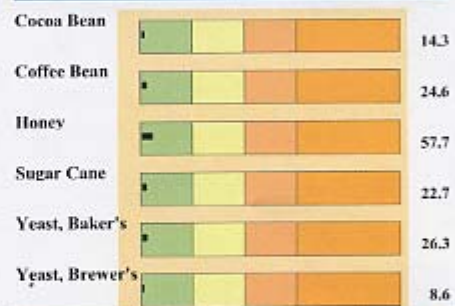
## Comprehensive Food Profile



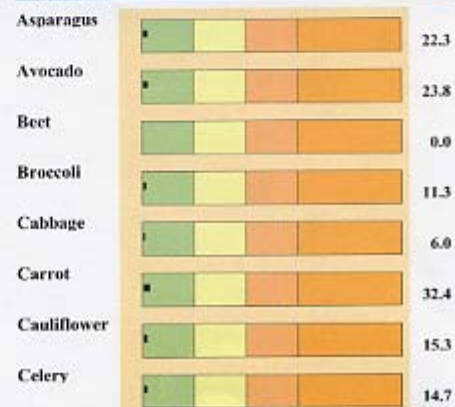
### Meat/Fowl



### Misc.



### Vegetables



# Other Helpful Suggestions

- When yeast is an issue, avoidance of sugar, fruit juices and products with yeast is important

## Xylitol and Stevia

- Avoid processed foods and buy organic whenever possible.
- Drink only purified water
- Avoid artificial colors, trans-fatty acids, nitrates, and other preservatives in food
- Don't get overwhelmed – moving ahead slowly is better than not doing anything at all

# Nutritional Supplements

# Reasons to give supplements for autism and PDD

- Most children with autism have poor self-restricted diets.
- Special diets can cause deficiency (calcium)
- Problems with digestion and absorption common due to poor intestinal health.
- Need for higher than normally recommended amounts due to abnormal metabolism or inborn errors of metabolism
- Help to detoxify toxic chemicals
- Prevent oxidative stress
- Contribute to the overall health of your child

# Nutritional Support Starter Package



- Specially designed to work together with Cod Liver Oil to provide the most important nutrients that research and clinical experience has shown to be important for children with autism.
- Includes essential vitamins, minerals, antioxidants, natural vitamins A and D and essential fatty acids.
- Carefully formulated to be tolerated by most children.
- Affordable and easy to follow.



# Getting Started with the Basics

- Vitamins
- Minerals
- Antioxidants
- Cod Liver Oil / Essential Fatty Acids
- Probiotics
- Digestive Enzymes

*Adding these nutrients into my son's protocol made a BIG difference*

# Vitamins and Minerals

- Calcium: 500-1000 mg
- Magnesium: 150 – 300 mg
- Zinc: 50 mg+
- Selenium: 50 – 300 mcg
- Molybdenum, chromium, manganese
- B-complex
  - B5, B6, Methylcobalamin, Folic acid, Thiamine
  - Niacinamide, Riboflavin, B-12 (methylcobalamin)
  - Cod Liver Oil – 25,000 IU Natural Vitamin A

***Avoid multi-vitamins containing copper***

# Recommended Antioxidants

Give in divided doses

- Vitamin C (buffered) 1000 mg
- Vitamin E (tocopherals) 100 – 400 IU
- Vitamin A (from CLO) 1000 – 3000 IU
- Beta Carotene/  
Mixed Carotenoids 5000 – 50,000 IU
- Co-Enzyme Q10 50 – 200 mg
- Glutathione 100 – 250 mg

(Others include Grape Seed Extract, Pycnogenol/Pine Bark Extract, Green Tea Extract)

**Antioxidants are critical for protecting the cells from damage from toxins and stress!**

# Important Supplement Facts

- **Omega 3 Fatty Acids** (enhance brain function)
- **High Dose Vitamin B6** (give separately to find right dose)
- **Probiotics** (Good bacteria for intestinal health)
- **Digestive enzymes** (heal gut, improve digestion)
- **Natural Anti-fungals/bacterials** (oil of oregano, grapefruit seed extract, uva ursi, olive leaf, MCT, goldenseal, monolaurin)
- **Melatonin** (for sleep issues)
- **GABA, 5-HTP, L-Theanine** (anxiety, hyperactivity)
- **Taurine** (aids metabolism, immune system, seizures)
- **DMAE** (focus and attention)
- **Colostrum** (strengthen immune system)
- **DMG/TMG** (immune system, can help w/ language)

# Important Things to Remember

- Nutritional supplements are only one piece of the puzzle
- Each child's biochemistry is unique. Children will respond differently
- Purchase only high quality, gluten/casein free supplements that can guarantee purity.
- Try one at a time (every 3-4 days)
- Some shouldn't start with a full dose
- Be prepared for trial and error

# How Supplements helped Daniel

- Immune system stronger (Colostrum, zinc)
- Eliminated Side glancing (Cod Liver Oil)
- Eczema cleared
- Increased cognitive abilities
- More calm and focused
- Began gaining weight (digestive enzymes)
- Maintained better yeast/bacteria control
- Overall better health

# Helpful Hints for giving supplements to young children

- Take a no nonsense sequential approach – **First** they must swallow/or eat “this” **Then** they can do something they want (eat, watch TV, play, etc.)
- Open capsules and mix into small amounts of apple, pear, peach sauce, or mix into small amount of orange juice and use syringe
- Reward them **immediately** afterwards with a good tasting supplement they like (gummy vitamins, chewable vitamin C, etc) They will associate the bad with the good
- Not a good idea to try to hide into food.
- Don't let them win. They will stop fighting you if they know it is a losing battle.

“*Getting Children to Take Nutritional Supplements*” article available in Chinese at the New Beginnings Nutritionals exhibit

# Yeast and Bacteria



How do I know if yeast is a problem?

Yeast/Fungal				
citramalic	0.0 - 2.0	0.88		
5-hydroxymethyl-2-furoic	0.0 - 80.0	10.48		
3-oxoglutaric	0.0 - 0.5	0.10		
furan-2,5-dicarboxylic	0.0 - 50.0	8.93		
furancarboxylglycine	0.0 - 50.0	1.25		
tartaric	0.0 - 16.0	9.71		
arabinose	0.0 - 47.0	180.28	H	
carboxycitric	0.0 - 16.0	8.39		



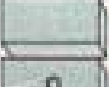



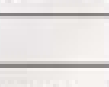




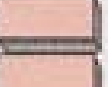
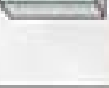
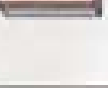




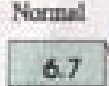
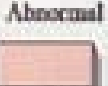
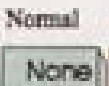





Bacterial				
2-hydroxyphenylacetic	0.0 - 10.0	0.39		
4-hydroxyphenylacetic	0.0 - 50.0	20.22		
HPPHA formerly DHPPA-A	0.0 - 150.0	306.38	H	
VMA analog	0.0 - 31.0	6.08		

Glycolysis				
lactic	0.0 - 100.0	5.13		
glyceric	0.0 - 10.0	11.34	H	
pyruvic	0.0 - 50.0	3.25		
2-hydroxybutyric	0.0 - 2.0	0.48		

Krebs Cycle				
succinic	0.0 - 20.0	41.90	H	
fumaric	0.0 - 10.0	1.68		
2-oxo-glutaric	15.0 - 200.0	7.85	L	
3-hydroxy-3-methylglutaric	0.0 - 36.0	24.77		
aconitic	0.0 - 25.0	18.08		
citric	180.0 - 560.0	606.10	H	


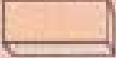
# Daniel's Organic Acid Test

# How do you know if yeast is a problem?

Digestive Parameters						
	Normal	Abnormal	Reference		Normal	Abnormal
Chymotrypsin			>9.0 IU/g	Fecal chymotrypsin is a useful measure of proteolytic activity and is closely correlated with protein digestion. Decreased chymotrypsin values may reflect pancreatic insufficiency. Triglycerides are the primary form dietary of fats and oils. Elevated triglycerides indicates reduced fat hydrolysis by pancreatic lipase. Elevated meat and/or vegetable fibers are indicative of incomplete digestion. This may be due to hypochlorhydria, pancreatic insufficiency, or improper mastication.		
Triglycerides			<300 mg/dl			
Muscle fibers			0 hpf			
Vegetable fibers			0-4 hpf			
Absorption Parameters						
	Normal	Abnormal	Reference		Normal	Abnormal
Cholesterol			< 250 mg/dl	Movement of hydrolyzed carbohydrates across the brush border and the basolateral membrane constitute important steps in the absorption process. The amount of fecal carbohydrates is a measure of carbohydrates that are unable to successfully cross into the circulation. The steatorrhea is a sensitive and specific test for malabsorption, while elevated levels of cholesterol may also be an indication of malabsorption, and should be considered in conjunction with levels of carbohydrate and fat in the feces for an assessment of absorptive		
Carbohydrates			Neg			
Steatorrhea %			0 - 9 %			
Inflammation and Immunology						
	Normal	Abnormal	Reference		Normal	Abnormal
Fecal sIgA			40-204 mg/dl	Immunological activity in the gastrointestinal tract can be assessed using secretory IgA measurements. Siga plays an important role in controlling the intestinal milieu, which is constantly presented with potentially harmful antigens such as pathogenic microorganisms, abnormal cell antigens, and allergenic proteins. Increased fecal lactoferrin has proven to be a reliable measure of inflammatory processes in the intestine, most often associated with bacterial infections.		
Lactoferrin			Neg			
Intestinal Health Markers						
	Normal	Abnormal	Reference		Normal	Abnormal
pH			6.0 - 7.0	WBC's		
Occult Blood			Negative	RBC's		
						None - Rare

## Comprehensive stool Analysis - 1



### Bacteriology Culture:

Beneficial flora		Imbalances		Dysbiotic flora			
Bifidobacter	0+						
E.coli	4+						
Lactobacillus	1+						
Enterohemorrhagic E. coli	Normal Abnormal Reference	Neg 	Neg	Campylobacter EIA	Normal Abnormal Reference	Neg 	Neg

### Yeast Culture:

Normal flora	Dysbiotic flora
No yeast isolated	

### Parasitology Evaluation:

Sample 1	Sample 2
Few Blastocysts hominis Few Yeast	Many Blastocysts hominis Mod Yeast
Giardia lamblia EIA	Cryptosporidium EIA
Normal Abnormal Reference	Normal Abnormal Reference
Neg 	Neg 
Neg	Neg

## Comprehensive stool Analysis - 2

## Prescriptive agents

	Sensitive	Intermediate	Resistant
Fluconazole	S		
Itraconazole	S		
Nystatin			R
Ketoconazole	S		

## Natural agents

	Sensitive	Intermediate	Resistant
Berberine	S		
Caprylic acid	S		
Uva Ursi	S		
Goldenseal	S		
Tanacet	S		
Oregano	S		

# Consequences of yeast and bacteria overgrowth

- Impaired cognitive function
  - Carbohydrate intolerance
    - Abdominal distension
- Intestinal permeability/food allergies
  - Hypoglycemic symptoms
  - Behavioral Abnormalities
    - Sleep Disturbances

# How to control yeast and bacteria overgrowth

- Probiotics (rotate good bacteria)
- Control sugar/carbohydrate intake (Xylitol)
- Nonprescription anti-fungals (grapefruit seed extract, oregano oil, garlic, olive leaf extract, caprylic acid/MCT oil, uva ursi)
- Prescription anti-fungal (Nystatin, Diflucan, Sporanox, Amphotericin B, Nizoral, Lamisil, etc.)

# Side effects associated with yeast “die-off” reaction

- Lethargy (tiredness)
- Fever
- Increased stereotypical behavior
- Increased hyperactivity
- Nausea and vomiting
- Loose Stools

*Alka-Seltzer Gold* and *Activated Charcoal* can neutralize some of the toxic acid produced

# Positive Responses to Anti-Fungal Therapy

- Increased focus and concentration
- Decreased hyperactivity
- Better sleep patterns
- Increased vocalization and speech
- Increased socialization
- Reduced aggressive behavior
- Reduced self stimulatory behavior (STIMS)



# Chelation/Detoxification

# Daniel's Hair Metals Test

POTENTIALLY TOXIC ELEMENTS				
TOXIC ELEMENTS	RESULT $\mu\text{g/g}$	REFERENCE RANGE	PERCENTILE	
			68 <sup>th</sup>	95 <sup>th</sup>
Aluminum	16	< 8	[Bar extending past 68th percentile]	
Antimony	0.13	< 0.066	[Bar extending past 68th percentile]	
Arsenic	0.16	< 0.08	[Bar extending past 68th percentile]	
Beryllium	< 0.01	< 0.02	[Bar within 68th percentile]	
Bismuth	0.17	< 0.13	[Bar extending past 68th percentile]	
Cadmium	0.31	< 0.15	[Bar extending past 68th percentile]	
Lead	0.4	< 1	[Bar extending past 68th percentile]	
Mercury	0.13	< 0.4	[Bar within 68th percentile]	
Platinum	< 0.003	< 0.005	[Bar within 68th percentile]	
Thallium	< 0.001	< 0.01	[Bar within 68th percentile]	
Thorium	0.006	< 0.005	[Bar extending past 68th percentile]	
Uranium	0.012	< 0.06	[Bar within 68th percentile]	
Nickel	0.12	< 0.4	[Bar within 68th percentile]	
Silver	0.41	< 0.2	[Bar extending past 68th percentile]	
Tin	0.33	< 0.3	[Bar extending past 68th percentile]	
Titanium	3.2	< 1	[Bar extending past 95th percentile]	
Total Toxic Representation				

ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT $\mu\text{g/g}$	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	152	125- 370	[Bar between 16th and 50th percentiles]				
Magnesium	14	12- 30	[Bar between 16th and 50th percentiles]				
Sodium	350	12- 90	[Bar between 16th and 50th percentiles]				
Potassium	66	12- 40	[Bar between 16th and 50th percentiles]				
Copper	10	8- 16	[Bar between 16th and 50th percentiles]				
Zinc	180	100- 190	[Bar between 16th and 50th percentiles]				
Manganese	0.45	0.2- 0.55	[Bar between 16th and 50th percentiles]				
Chromium	0.31	0.26- 0.5	[Bar between 16th and 50th percentiles]				
Vanadium	0.073	0.03- 0.1	[Bar between 16th and 50th percentiles]				
Molybdenum	0.071	0.05- 0.13	[Bar between 16th and 50th percentiles]				
Boron	9.4	0.6- 4	[Bar between 16th and 50th percentiles]				
Iodine	2.3	0.25- 1.3	[Bar between 16th and 50th percentiles]				
Lithium	0.014	0.007- 0.023	[Bar between 16th and 50th percentiles]				
Phosphorus	288	160- 250	[Bar between 16th and 50th percentiles]				
Selenium	1.7	0.95- 1.7	[Bar between 16th and 50th percentiles]				
Strontium	0.15	0.16- 1	[Bar between 16th and 50th percentiles]				
Sulfur	48200	45500- 53000	[Bar between 16th and 50th percentiles]				
Barium	0.3	0.16- 0.8	[Bar between 16th and 50th percentiles]				
Cobalt	0.012	0.013- 0.035	[Bar between 16th and 50th percentiles]				
Iron	15	8- 19	[Bar between 16th and 50th percentiles]				
Germanium	0.028	0.045- 0.065	[Bar between 16th and 50th percentiles]				
Rubidium	0.062	0.016- 0.18	[Bar between 16th and 50th percentiles]				
Zirconium	0.84	0.04- 1	[Bar between 16th and 50th percentiles]				

SPECIMEN DATA

RATIOS

EXPECTED

# Chelating Agents

**DSMA** – (meso-2,3-dimercaptosuccinic acid or *Succimer*), FDA approved for use in children with lead poisoning, extensive safety record, available without a prescription. Oral or transdermal.

**DMPS** – (2,3-dimercaptopropane-1-sulfanate). Given by I.V., orally, or transdermal.

**EDTA** – (calcium disodium) IV, transdermal, oral, or suppository.

Anyone attempting chelation should only do so under the supervision of a knowledgeable medical professional

# Chelating Daniel

- 25 Mg. DMSA, every 4 hours
- 3 days on, 11 days off
- Increase Antioxidants (Vitamins A, C, E)
- GAVE extra Minerals/Zinc EVERYDAY
- Milk Thistle for liver protection
- Drink lots of liquids
- Side effects – lethargy, cold symptoms
- Steady improvement seen after each cycle
- Yeast overgrowth can occur but can be managed with natural anti-fungals

# Far Infrared Sauna Therapy (FIR)

- Sweating allows detox through the skin
- FIR allows sweating at low temperature
- Detoxifies heavy metals AND chemicals
- Reduces pain and inflammation
- We have *Sunlight Sauna* brand and we love it!

# Applied Behavioral Analysis

- One-on-one setting
- Teach in small measurable steps with repetition
- Use of reinforcers
- Scientifically proven to be the most effective way to teach children with autism
- Not just for “low functioning” children
- Expensive but worth it.
- Early childhood “center based” classrooms not always adequate
- Helped teach Daniel abstract concepts
- Enabled him to catch up faster to his chronological age level
- Combined sensory, fine and gross motor, play therapy, and academic programs

# Final Important Points

- Be a DETERMINED PARENT - persevere
- Find a way to try as many treatments as possible
- Continually research new treatments (conferences, books, internet groups)
- Be your child's medical and educational advocate.
- Successes will vary – not all kids will recover but many will see significant improvement!
- The whole family can benefit



# Alternative treatments that may be an important piece of the puzzle for your child

- Osteopathic manipulation/cranial sacral
- Energy healing modalities (NAET, BioSet)
- Homeopathic remedies
- Far infrared saunas (sunlight saunas)
- Ionic Footbaths
- Hyperbaric oxygen therapy (HBOT)

*Seek referrals by other parents*

# Where we are today...(8years)

- Mainstream 3<sup>rd</sup> Grade
- No longer requires special education plan
- Plays appropriately with peers
- Responsive and engaged with environment
- Academically advanced
- Still struggle with yeast
- Normal expressive & receptive language
- Daniel's recovery is managed

# Why there is reason hope...

## *Before*



18 months



2 years

*After*



Daniel and Dixie – 6 months into treatment