

Gastrointestinal Pathology & the use of the Dairy-Free Specific Carbohydrate Diet in Autism and ADHD

Pamela Ferro, R.N.

ARI
Wednesday, October 27, 2015
pamelaferro@aol.com

Objectives

- Discuss the type of gastrointestinal issues frequently found in children with ASD
- Describe the history of the origin, development, and modifications of the dairy free Specific Carbohydrate Diet (SCD-DF).
- Discuss the role of the gut microbiota and its importance in health and the treatment of people with certain gastrointestinal problems common in ASD.
- Discuss the scientific principles underlying the SCD/SCD-DF, the foods allowed, and the expected results of this dietary approach.

SCD Now: Studies are Happening

- Stanford University. *Specific Carbohydrate Diet as Maintenance Therapy in Crohn's Disease (SCD)*. Clinical Trials Identifier #NCT01749813 (Estimated completion, July 2015)
- Kakodkar, S., Farooqi, A. J., Mikolaitis, S. L., & Mutlu, E. a. (2015). *The Specific Carbohydrate Diet for Inflammatory Bowel Disease: A Case Series*. *Journal of the Academy of Nutrition and Dietetics*, 115(8), 1226-1232. doi:10.1016/j.jand.2015.04.016
- Suskind, D. L., Wahbeh, G., Gregory, N., Vendettuoli, H., & Christie, D. (2013). *Nutritional Therapy in Pediatric Crohn's Disease: The Specific Carbohydrate Diet*. *Journal of Pediatric Gastroenterology and Nutrition*, 58 (1), 87-91, 98105. doi:10.1097/MPG.0000000000000103
- Kakodkar, S., Mikolaitis, S., Engen, P., & Mutlu, E. (2013). *The Bacterial Microbiome of IBD Patients on the Specific Carbohydrate Diet (SCD)*. *American Journal of Gastroenterology* (Vol. 108, pp. S552-S552).
- Walters, S. S., Quiros, A., Rolston, M., Grishina, I., Li, J., Fenton, A., ... Papathakis, P. (2014). *Analysis of Gut Microbiome and Diet Modification in Patients with Crohn's Disease*. doi:10.15226/sojmid/2/3/00122
- Cohen, S. A., Gold, B. D., Oliva, S., Lewis, J., Stallworth, A., Koch, B., ... Mason, D. (2014). *Clinical and Mucosal Improvement with the Specific Carbohydrate Diet in Pediatric Crohn's Disease: A Prospective Pilot Study*. *Journal of Pediatric Gastroenterology and Nutrition*. [ePub ahead of print]. doi:10.1097/MPG.0000000000000449
- Olendzki, B. C., Silverstein, T. D., Persulfite, G. M., Ma, Y., Baldwin, K. R., & Cave, D. (2014). *An anti-inflammatory diet as treatment for inflammatory bowel disease: a case series report*. *Nutrition Journal*, 13, 5. doi:10.1186/1475-2891-13-5
- SCD Study. The Johnson Center for Child Health and Development in Austin, TX. *Children experiencing GI problems who have been diagnosed with ASD*. (In Peer Review)

Autism Definition (DSM-5)

Two Main Areas of Difficulty:

- Persistent deficits in social communication and social interaction
- Restricted repetitive patterns of behavior, interest, or activities.

Education/psychiatric disorder to biomedical disease

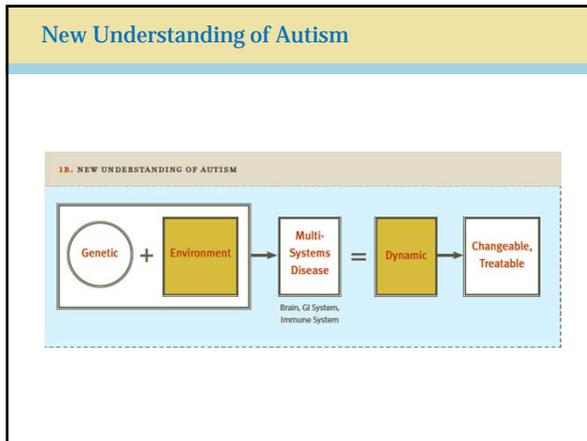
Elaine Gottschall, B.A. M. Sc.

Old Understanding of Autism

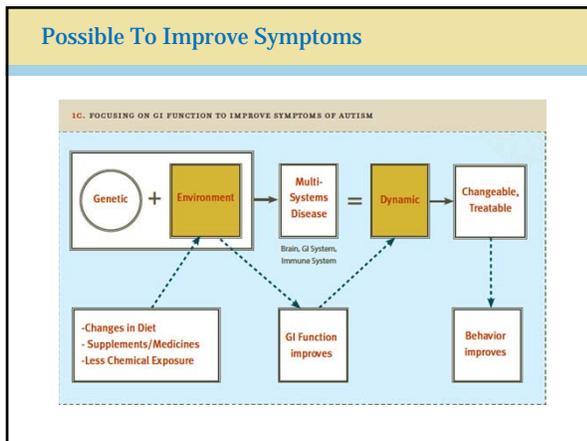
1A. OLD UNDERSTANDING OF AUTISM

```

    graph LR
      A((Genetic)) --> B[Disease of the Brain]
      B == C[Static]
      C --> D[Unchangeable, Untreatable]
  
```



- ### Evaluation of GI disease in children with autism
- Buie T, Campbell DB, Fuchs GJ. 3rd, Furata GT, Levy J, Vandewater J et al. Evaluation, diagnosis, and treatment of gastrointestinal disorders in individuals with ASD: a consensus report
 - Gastrointestinal Disorders in Individuals with ASD
 - Pediatrics, Jan 2010, Vol 125, Supplement 1



- ### ASD & Abdominal Pain
- According to a 2010 American Academy of Pediatrics, children with ASD experiencing abdomen pain may display the following behaviors:
- Frequent clearing of the throat, swallowing, tics, etc.
 - Screaming
 - Sobbing "for no reason at all," sighing, whining
 - Moaning, groaning
 - Facial grimacing, gritting teeth, wincing
 - Constant eating/drinking/swallowing ("grazing" behavior"
 - Mouthing behaviors: chewing on clothes
 - Application of pressure to abdomen
 - Tapping behavior: finger tapping on throat
 - Unusual posturing
 - Agitation, pacing, jumping up and down
 - Unexplained increase in repetitive behaviors, self injurious behaviors: biting, hitting/slapping face, head-banging
 - Aggression: onset of, or increase in, aggressive behavior

- ### Research Studies
- 437 studies of immune dysregulation/inflammation (95 % showed association)
 - 115 studies of oxidative stress (100% showed association)
 - 153 studies of mitochondrial dysfunction (95% showed association)
 - 190 studies of toxicant exposures (89% showed association)
 - Majority published in the past 5 years
- Source: Elizabeth Mumper, MD, FAAF

- ### Conditions of Patients
- Toddlers who developed age-appropriate skills and then regressed
 - Children who missed milestones starting from their first months of life
 - Nonverbal children, and children finding it difficult to communicate with language
 - Toddlers, teenagers, and even adults who avoid eye contact
 - Hyperactive children as well as listless toddlers
 - Boys and girls with mild to severe sensory issues
 - Children surviving on unhealthy foods such as French fries
 - Kids on a gluten-free casein-free diet
 - Children exhibiting "pica", or eating non-food items (including feces)
 - Teenagers diagnosed with ASD formerly known as Asperger syndrome
 - Elementary school students with nearly crippling physical and emotional symptoms
 - Children not able to attend school
 - Boys and girls with sleep issues, including night terrors
 - Kids taking prescription medications for problems including self injury, hyperactivity, insomnia, constipation, diarrhea, and severe reflux



Dietary Interventions





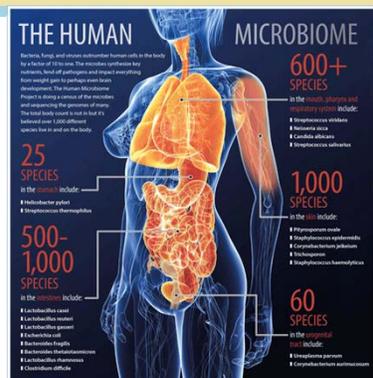
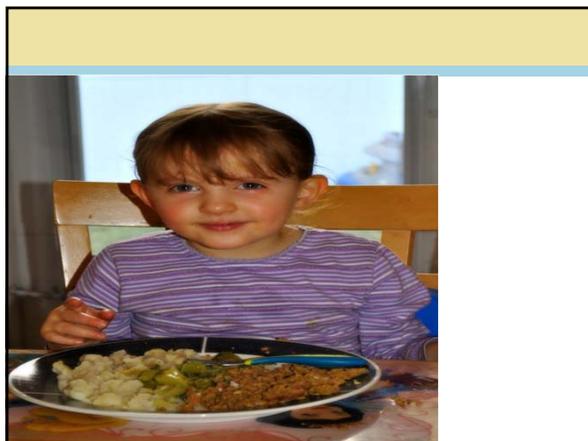

May 2010

Diet:
Yogurt and Crackers

No Expressive Language

Chronic Constipation

Autism, Allergy, Asthma, Autoimmune Disease

SCD: Dr. Haas & Elaine Gottschall



603 children seen over 25 years

- 143 seen only a few times for less than 3 months
- 90 seen only once as referrals/consultation
- 370 cases seen over a period of years

Of the 370 cases:

- 270 (73%) cured
- 89 (24%) recent cases and on the road to cure
- 8 (2.2%) not cured after 3 years
- 4 didn't follow the diet
- 1 cured after 4-1/2 years
- 1 cured after 6 years
- 1 relapse after asthma
- 1 occasional loose stools
- 3 (0.8%) died (Passed away from either flu acquired in hospital, acute bronchitis, or pulmonary infection-not directly GI related)

Haas, S. (1950). Diagnosis and treatment of celiac disease: report of 603 cases. *Postgraduate Medicine*, 7, 239-250

Haas, S. V. & Haas, M. P. (1955). *The treatment of celiac disease with the specific carbohydrate diet: report on 191 additional cases.* *The American Journal of Gastroenterology*, 23(4), 344-60. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/14361377>

Normal Digestion: Healthy Absorption

Figure 7 | The Human Gastrointestinal Tract

Figure 6 | Tall, healthy, mature intestinal absorptive cell

Gottschall, Elaine, Breaking the Vicious Cycle, 1994

Normal Digestion

1D. NORMAL DIGESTION: STARCH BREAKS DOWN INTO SIMPLE SUGARS

Starch "Chains of Sugars"

Breakdown: mouth (saliva), small intestine

Double Sugars

Breakdown: small intestine

Single Sugars

Absorbed into Bloodstream: Fuel for the body

Impaired Digestion: Compromised Villi

Figure 8 | Flattened, injured, immature absorptive cell

HEALTHY

INJURED/COMPROMISED

Gottschall, Elaine, Breaking the Vicious Cycle, 1994

Impaired Digestion

1E. IMPAIRED DIGESTION: STARCH FAILS TO BREAK DOWN AND FEEDS HARMFUL BACTERIA

Starch "Chains of Sugars"

Breakdown: mouth (saliva), small intestine

Double Sugars

Intestinal injury: Cannot breakdown Double Sugars

Trouble: Sugars are Fuel for harmful bacteria

Classification of the three main categories of carbohydrates

All carbohydrates consist of the following molecules:

- Mono-saccharide**
contains one saccharide molecule
- Di-saccharide**
contains two saccharide molecules
- Poly-saccharide**
contains many saccharide molecules

Abdominal Pain

1G. GI SYMPTOMS FROM ABNORMAL FERMENTATION MAY LEAD TO BEHAVIORAL PROBLEMS

Abnormal Fermentation

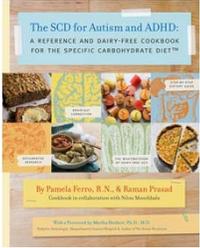
Bloating, pain, gas

Behaviors in a child with ASD and stomach discomfort/pain

Agitation, stinging, crying, pressing abdomen, gritting teeth, screaming, aggression, self-injury... (and more)

SCD-DF For Autism & ADHD

- Strict avoidance of dairy for at least 6 months.
- Use coconut oil, ghee, and applesauce in place of butter and cow or goat yogurt in recipes
- In place of yogurt, use probiotics and fermented foods



Transitional Menu

SAMPLE TRANSITIONAL MENU	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Breakfast	Banana Bread (p. 48), Homemade Applesauce (p. 34)	Pan & Raman's Blueberry Muffins (p. 104)	Wake up Scrambled Eggs* (p. 21)	Pan & Raman's Blueberry Muffins (p. 104)	Wake up Scrambled Eggs* (p. 21)	Banana Bread (p. 48), Homemade Applesauce (p. 34)	Omelet with Bacon, Asparagus, & Chives (p. 11)
Lunch	SCD Chicken Nuggets (p. 12), fresh fruit	Flourbread (p. 19), with almond butter (p. 15)	SCD Chicken Nuggets (p. 12)	Turkey Apple Patties (p. 16), Pan & Raman's Crackers (p. 10) with almond butter	Flourbread (p. 19), with almond butter, fresh fruit	Mini-Hamburgers* (p. 18), Flourbread (p. 19)	Fish Sticks (p. 16) with lettuce and olive oil
Dinner	Mini-Hamburgers* (p. 18), Squash Home Fries (p. 31)	Turkey Apple Patties (p. 16)	Chicken Soup* (p. 14), Pan & Raman's Crackers (p. 10)	Mama's Meatballs (p. 18), Squash Home Fries (p. 31)	Chicken Soup* (p. 14)	Fish Sticks (p. 16) with lettuce and olive oil	Mama's Meatballs (p. 18)

Taken from p.163 of "The SCD For Autism & ADHD: A Reference and Dairy-free Cookbook for the Specific Carbohydrate Diet".

SCD Diet: What Can You Eat?

YES

- Vegetables- fresh or frozen, raw* or cooked (with no added sugar or starch)
- Fresh or frozen poultry, fish, beef, lamb, pork
- Eggs
- Oils
- Fruits- fresh or frozen, raw* or cooked; (with no added sugar)
- Nuts* and nut flours*, coconut flour, spices
- Honey*
- Ghee (clarified butter with no lactose or casein)
- Specific beans and lentils (soaked overnight and cooked, may be tried after 3 months)

Legal Foods (Allowed)

NO

- Grains, including bread, rice, pasta, cereal, and products with corn
- Processed meats. For example: hot dogs, cold cuts, and fast food
- Potatoes (or other starchy roots)
- Unhealthy oils: corn oil, safflower oil, and soybean oil
- Dairy products (including milk and yogurt), margarine
- Soy products
- Starches. Added sugars, including corn syrup, cane sugar, molasses

Illegal Foods (Not Allowed)

Common Setbacks

3- Month regression

- Lethargy and anxiousness
- Mucous and upper respiratory/ sinus issues
- Stools containing mucous that resembles egg whites

6-month regression

- This is similar to the 3-month regression-both in terms of the symptoms and the actions to take.

8-month "itch" (To Eat Other Foods)

Accidental Cheating

A Successful Transition

- Preparation is key.
- Identify the recipes that closely match what your child is eating.
- Design a weekly menu.
- Shop for specialty items (almond and coconut flour, ghee, sea salt, alcohol free vanilla, coconut oil).
- Cook and freeze. Spend a day cooking (without the children home if possible).
- Clean out your cabinets.
- "Eat it and Leave it." Introduce new foods without pressure.
- Consider introducing the entire family of this way of eating.

Limitations of most dietary interventions

- No mention of the quality of foods
- No instruction on health cooking methods
- No protocol to add other foods
- No instruction of how or when to take vitamins and probiotics
- No information on sensitivities or allergies
- No body, mind, and spirit instructions

Resources

Websites:

- www.scdrecipe.com/autism
- www.breakingtheviciouscycle.info
- www.pecanbread.com

Books:

- Breaking the Vicious Cycle By Elaine Gottschall
- The Autism Revolution by Martha Herbert, M.D., Ph.D.
- The SCD for Autism & ADHD by Pamela Ferro, R.N., & Raman Prasad

SCD Supplies:

- Duke's Bakery and Variety: www.dukesbakery.com
- Lucy's Kitchen Shop: www.lucyskitchen.com
- SCD Bakery: www.scdbakery.com

Supplements:

- www.GIProHealth.com

Summary

- Assume that children with autism and behavioral issues have pain until you prove otherwise.
- Gastrointestinal pathology can play a pivotal role in a child's behavior, mood, language and cognition.
- Microbiota research may be central to the possible treatments not only in gastroenterology, but also pediatrics, obstetrics, neurology, psychiatry, and cardiology.
- Dietary interventions require planning and clinician oversight.
- The SCD works by starving out bacteria and restoring the balance of bacteria in our gut.

Going Forward

Research:

- Learning from germ free mice
- Fecal implants
- Clinical applications for microbiota research
- Microbiota research may be central to the possible treatments not only in gastroenterology, but also pediatrics, obstetrics, neurology, psychiatry, and cardiology

While we are waiting for research results:

- Diet
- Antibiotics
- Probiotics