

Digestive Disorders & Solutions Associated With ASD



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Survey Results

80% of children on the spectrum report digestive issues

70% currently follow, or have tried, a restrictive diet

52% gluten-free

55% casein-free

44% eliminate artificial flavors and additives



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“Obvious” Symptoms

- Stomach Pain
- Constipation
- Diarrhea
- Gas,Bloating
- Dark Circles Under Eyes
- Food particles in Stools
- Fatigue
- IBS



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“Not So Obvious” Symptoms

- Hyper Activity
- Poor Memory
- Moody Behavior
- Constant Hunger
- Sleep Problems
- Extreme Picky Eater



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The Gut-Brain Connection

The gut is intricately connected with the...

- Immune System
- Nervous System
- Behavior and Learning



Michael D. Gershon, M.D. (Author of The Second Brain) helped prove that serotonin is a primary neurotransmitter in the gut and these investigations, long rebuffed in the neuroscience world, have lead to the discovery of numerous other gut neurotransmitters.

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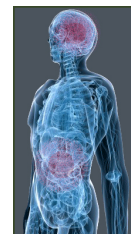
The Gut-Brain Connection

Opioid Peptides:

Short sequences of amino acids that mimic the effect of opiates in the brain.

Partially digested food (exorphins).
Gluteomorphin, Casomorphin

Brain opioid peptide systems are known to play an important role in motivation, emotion, the response to stress and pain, and the control of food intake.



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The Gut-Brain Connection

Serotonin transmitters were found to be located in the gut (not just in the brain). Serotonin plays an important role as a neurotransmitter in the *modulation* of anger, aggression, body temperature, mood, sleep, appetite, and metabolism.

About 80-90% of the human body's total serotonin is found in the cells of the gut.



Adverse Food Reactions

Food Allergies

IgE: Immediate histamine release
Anaphylaxis - life threatening



Food Sensitivities

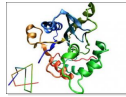
IgG, IgA, IgM: Delayed reaction (hrs / days)
80% to Wheat, Dairy, Eggs, Sugar

Food Intolerances

Enzyme deficiencies ~ non-immune reactions
Lactose, Gluten, Disaccharide, Phenols,

Enzymes

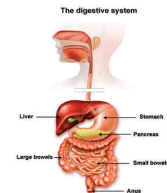
- All living things manufacture enzymes
- Enzymes perform specific functions.
- All enzymes work within a specific pH and temperature range
- There are thousands of different enzymes functioning in our bodies, each with a unique role.



Types

Digestive Enzymes

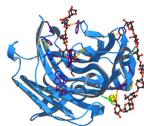
- Digestion
- Assimilation
- Nutrition
- Waste removal
- Immunity.



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Enzyme Groups

Enzyme Groups

- Protease – Protein
- Lipase – Fats
- Amylase – Carbohydrates
- Cellulase – Fiber



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Dairy Intolerance

70% of the world population are intolerant
Small amounts can sometimes be tolerated

Lactose (dairy sugar)

Casein (dairy protein)

Lipids (dairy fats)

Solution: Dairy Elimination, Dairy Digesting Enzymes



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Gluten & Casein

- 1% Celiac
- 15% Gluten Intolerance
- Much higher in ASD's



Solution: GFCF Diet / Gluten and Casein Digesting Enzymes*

* Enzymes do not replace diet.

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Disaccharides

- Two Molecule Sugars
- Lactose, Maltose and Sucrose
- Lactase, Maltase, Sucrase (Invertase)



Solution: SCS Diet / Disaccharide Digesting Enzymes*

* Enzymes do not replace diet.

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Phenols & Salicylates

- Benjamin Feingold MD
 - ADD, ADHD, Autism
 - Scrambled Thought Processes
- Preservatives, Artificial Colors and Flavors
 - Cherries, Red Apples, Peaches, Plums Cucumbers,
- The modification phenolic compounds by the addition of carbohydrate groups prevents metabolization.
- Solution: Carbohydrate Digesting Enzyme (Xylanase)



Enzyme Benefits

- Maldigestion
- Malabsorption
- Dysbiosis
- Immune / Inflammation



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Research

Dr. Martha Herbert, assistant professor in neurology at Harvard Medical School, told CBC News that the study opens up a new way of thinking about the disorder.

"Now we're learning that the brain and body can influence each other," she said. Autistic children are increasingly being seen as "over-sensitized," meaning "things may bother them that don't bother other people," she said. "We need to pay attention to this."

"Treating a child's health should be the first step in addressing autism, Herbert said, rather than solely focusing on behavioral therapy, currently a mainline approach."

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Imbalanced Bacteria



In 2002, microbiologists at the University of California, Los Angeles: Children with autism ...(have) an extreme imbalance of bacteria in their gut.

He says this idea is bolstered by the fact that children who abruptly regress into autism often do so after taking antibiotics for ear or other routine infections.

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Proven Benefits of Microflora Balance

- Enhances digestion & assimilation of nutrients, vitamins & minerals
- Manufactures cellulase
- Manufactures B vitamins
- Fights infection
- Boosts immunity



Research

In one study 31% of infants on standard formula developed diarrhea vs. only 7% given formula with probiotics

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Probiotic Defined

Survey Results

80% of parents said they offer dietary supplements

70% Use Probiotics

57% Use Enzymes

70% declare diet and supplements provide needed support.



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Enzymes: How They Affect Autism

Business Week 1-14-2010

"One of the most promising treatments in this category is a drug called CM-AT. Many autistics show a strong preference for foods high in carbohydrates and low in protein. A diagnostic test revealed that some autistic children lack enzymes that digest protein."

Fallon believes this deficiency is linked to the most severe symptoms of autism, an orally ingested powder that delivers protein-digesting protease, showed "significant improvements."

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Potency & Active Units

● Active Units

- FCC (Food Chemical Codex)
 - International standard of measurement for enzyme activity
 - Measurement describes how much of a particular substrate (food) an enzyme has the potential to break down.



Compare apples to apples

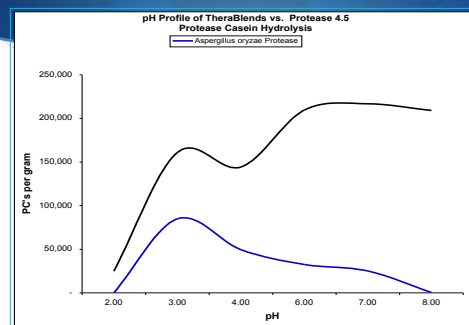
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Measuring Active Units

- Alpha-Galactosidase – GALU (Galactosidase Units)
- Amylase – DU (Dextrinizing Units)
- Bromelain – GDU (Gelatin Digesting Units)
- Cellulase – CU (Cellulase Unit)
- Glucoamylase – AG (Amyloglucosidase Units)
- Invertase – INVU (Invertase Activity Unit)
- Protease – HUT (Hemoglobin Unit Tyrosine Base)

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Blend vs. Single



How to take Enzymes

Timing:

Digestive: Before for food

Therapeutic: Empty Stomach

Dosing:

Mix it with a little water or juice

Mix it on a spoon of applesauce

Mix it with water and then syringe

At school most times you will need a doctors note

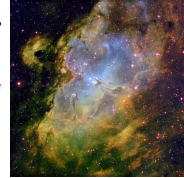


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The End

*"The more we come to know, the more
we realize how little we know...."*

*Everything we have learned is nothing
compared to what we have yet to
learn."*



A Science Odyssey: 100 Years of Discovery by Charles Flowers