A Multidisciplinary Treatment Approach to Autism: The Science and Rationale

Your child is not broken but CHALLENGED

Your child really is “in there”!!
Static model of autism

- Genes
- Prenatal
- Hardwired
- Hopeless

  - Inevitable
  - Fixed
  - Unchangeable

Static model of autism is not supported by evidence

- Genes  →  But also Environment
- Prenatal  →  But also postnatal
- Hardwired  →  Lots of changeability
- Hopeless  →  Lots of kids improve greatly
              Some kids lose their
              ASD diagnoses
Gene → Brain → Behavior model

Gene

Brain

Communication
Social interaction
Restricted behavior

Behavior model

Genetics

Whole Body Model: Vicious circles in brain and body

Physical & Psychosocial Environment

Genetics

Cellular Dysfunction:
Energy, Signaling,
Metabolism

Brain

Body

Communication
Social interaction
Restricted behavior

Sensory
Sleep
Seizures

Gastro
Immune
Hormones etc.

Frustration

More easily OVERWHELMED

Pain,
Poor function
Sickness

Overload!
STRESS!
Much more comprehensive than Gene → Brain → Behavior

- This model is too linear
- It leaves out too many important things

Autism is Complex:
Levels that are all involved AT THE SAME TIME

- Creativity
- Social interaction
- Learning
- Behavior
- Brain as information system
- Brain as wet physical organ
- Organs
- Cells
- Chemistry
- Genes and environment
Multi-system from the start?
Kanner 1943 on body symptoms

Case 1: “Eating has always been a problem ….” for him. He has never shown a normal appetite.”
Case 2: “…large and ragged tonsils.”
Case 3: diarrhea and fever following smallpox vaccination …. healthy except for large tonsils and adenoids.
Case 4: vomited a great deal during his first year… feeding formulas were changed frequently … tonsils were removed...
Case 5: nursed very poorly … quit taking any kind of nourishment at three months… tube-fed five times daily up to one year of age…At camp she slid into avitaminosis and malnutrition but offered almost no verbal complaints.”
Case 7: vomited all food from birth through the third month....
Case 8: feeding formula caused ...concern. … colds, bronchitis, streptococcus infection, impetigo...
Case 9: none of the usual children's diseases.” [? Overactive immune system?]
Case 10: frequent hospitalizations because the feeding problem … repeated colds and otitis media
Case 11: was given anterior pituitary and thyroid preparations for 18 months
Kanner’s original paper, discussed in Jepson 2007

Not just behavior –
Many levels

• Not bottom up – not “caused” by genes (though they can contribute)
• Middle-out – physiology driven
• Responds to top-down intervention (behavior, self-regulation)
• Responds to bottom up (clean up health, environment)

➢ Covering all your bases is usually best
What you need to know about the brain

• The brain is affected by the health or dysfunction of the whole body
• Your child’s brain is probably irritated –
  – Inflammation
  – Weakened cell membranes
  – Oxidative stress
  – Nutrition and supply shortages
• The brain is overwhelmed
  ➢ BUT
  ➢ The brain can change and repair

Brain cells in inflammation

• Excitatory chemicals created by activated glial cells
• Normal housekeeping functions of glial cells get neglected
• Chronic inflammation is irritating and promotes excitotoxicity
• Chronic inflammation can cause damage

Inflammation and Its Discontents: The Role of Cytokines in the Pathophysiology of Major Depression.
Miller et al., BIOL PSYCHIATRY 2009;65:732–741
A FINAL COMMON PATHWAY?
Model of autism: Increased ratio of excitation / inhibition in key neural systems

Too Much Excitation

Not Enough Inhibition

More: irritability, hypersensitivity, overload

Loss of informational complexity and organization

Reduced signal to noise ratio

A Different Model of Autism:
Autism as an emergent property of a system with altered parameters

• Autism could be a dynamic, active consequence of challenges to cellular function throughout the body, including the brain

• These cellular changes may be related to environmental insults

• Altered cellular response could be at the root of brain and body problems

• This could explain the dynamic features

• Many cellular problems can be treated

Herbert, 2009 in press, “Autism: The centrality of pathophysiology and the shift from static to dynamic encephalopathy” In Chauhan et al, Autism: Distal stress, inflammation and immune abnormalities
Whole Body systems Model:
  Symptoms **Emerge** from
  Problems with **Underlying Functions**

VISIBLE Social & Behavioral SYMPTOMS

UNDERLYING SYSTEMIC FUNCTIONAL DISTURBANCES


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Your child’s brain is NOT “broken”

- Their capacities and ability to express are OBSTRUCTED
- They probably have amazing capabilities
Release what you thought you’d wanted in your child

And fall in love through and through with the child you have

Reduce *Total Load* of Stressors to get Better Health, that will give Brains more “Bandwidth”

<table>
<thead>
<tr>
<th>Poor Bandwidth:</th>
<th>Lots of Bandwidth:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited Reception</td>
<td>Good Reception</td>
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</table>

Better Reception Allows Better Discernment of Differences and More Spontaneous Learning
Build **Resiliency** and Reduce “**Total Load**”

**“TOTAL LOAD”**
- The TOTAL BUILD-UP of noxious exposures, stressors and deficiencies
- MINUS
- What you have been able to get rid of or overcome

**RESILIENCY**
- The TOTAL SET of strengths, adaptations, skills, cell health, nutritional fortitude, exercise, community and more
- MINUS
- Total Load

This means there are **MANY THINGS YOU CAN DO!**

- Improvement at any level takes some of the stress and dysfunction out of the system
- This give the rest of the system more room to readjust in a healthy direction
- All healthy choices are important!
- Any improvement opens the way to further improvement!
An Overview of Biomed

- Improve Cell Health
- Brain Health Improves
- Brain Functions Better
- More Bandwidth, Less Stress
- Better Behavior, More Learning

All the parts really influence each other

- Body Cell Health Problems
- Challenging Behaviors
- Stress and Overwhelm
- Brain Function Glitches
- Brain Cell Health Problems
Problems in each area make trouble for the other areas

**PHYSIOLOGY:** Vicious Cycles Feed Off of Each Other

- Body Cell Health Problems
- Brain Cell Health Problems
- Challenging Behaviors
- Stress and Overwhelm
- Brain Function Glitches

Dialing back the problems and Moving Toward Whole Body-Brain Health

**PHYSIOLOGY:** Build Resiliency to Stop Vicious Cycles

- Improve Cell Health
- Brain Health Improves
- Better Learning, Better Behavior
- Less Stress, More Bandwidth
- Brain Functions Better
The Music of Life: Biology Beyond the Genome

Beautiful readable book

Discusses physiology and the “middle→out” approach

http://www.musicoflife.co.uk/

A Middle-Out Approach to Autism: Physiology Centered

Etiology

Pathogenesis & Active, ongoing (patho) physiology

Phenotype

Genes Genome G x E

Gene Expression

Nervous System Physiology

Behavioral Cognitive Medical

Systemic Physiology

Developmental Time
How to Build Brain-Body Health

- **Food**  High nutrient density, alkaline
- **Toxins**  Minimize exposures
- **Bugs**  Build Healthy Gut Bugs
- **Stress**  Minimize stress
- **Activity**  Vigorous, brain-building
- **Sleep**  Sleep hygiene
- **Sensory Diet**  Enough of the right kind
- **Learning**  Appropriate genuine challenges

“*You may believe you've been overcharged, but, remember, you're overmedicated.*”

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Food: Good Foods

- **HIGH NUTRIENT DENSITY**
- All the colors of the rainbow
  - Antioxidants, Phytonutrients
- **Get those healthy fats**
- Load up on trace substances
  - Bone broths
  - Green smoothies

Foods to Try Avoiding

- **Gluten**
- **Foods that turn into sugars easily** –
  - Avoid “high glycemic index” foods
    - Sugars, starches
- **Many need to avoid dairy**
- **Avoid processed foods – get fresh products, organic when you can** –
  - You can learn to cook quickly from scratch
- **Allergens**
  - Try eliminating common allergens
    - Milk, wheat, corn, soy, chicken, peanuts, apple
  - Look out for your child’s particular sensitivities
  - NO CHEATING!!!
Toxins

• Avoid exposures
  – Cleaning products
  – Body products – creams, cosmetics
  – Food additives
  – Pesticides
  – Home remodeling

• Support the body’s detox equipment
  – Support methylation and glutathione synthesis
    • NAC if your child’s gut is healthy
  – Minerals (sulfates, zinc, molybdenum, selenium)
  – Vitamins (B vitamins, Vitamin C)

Bugs: Good Bugs, Bad Bugs

• Keep Gut Bugs Healthy
  – Probiotics
  – Cultured foods
  – Avoid unnecessary antibiotics – they kill good bugs too

• Prevent infection
  – Keep Vitamin D levels 50-70
  – Healthy Diet
  – Wash hands a lot
  – But watch out for antimicrobial soap –
    • it contains ingredients that can cause harm
    • It is not a substitute for hand washing and hygiene
Stress

• Stress is hard on Body and Brain
• PLAN AHEAD – Avoid time crunches
  — PLAN PLAN PLAN PLAN PLAN
• Try to do “HALF AS MUCH IN TWICE THE TIME”
• Make instructions simple and step by step
• Avoid overstimulating environments
• If they can’t be avoided, plan supports ahead of time

Vigorous and Brain-Building Activity

• Vigorous activity
  — Builds cell and body health
  — Supports the Brain
  — Reduces stress
• Brain-building activity builds
  — Body awareness
  — Coordination
  — Sense of self in space
  — Confidence
• TAKE YOUR TIME IN RAISING THE BAR – NO RUSH!
Sleep:
Restore, Repair, Integrate

• Sleep is a vital process
  — It allows you to repair tissues, grow properly, integrate information

• Sleep disruption is extremely common in autism

• Sleep is a BIG PRIORITY – for your child and FOR YOU TOO!!!

• Sleep disruption
  — Worsens immune and inflammatory conditions
  — Leads to insulin resistance
  — Poor attention, poor learning, poor behavior

Steps to Better Sleep

• PRACTICE EXCELLENT SLEEP HYGIENE
  — Ramp things down. No sugar, no caffeine
  — EPSOM SALT BATH BEFORE BED EVERY NIGHT
    • 2 cups epsom salts + ½ cup baking soda – 10-20 minutes in tub

• Look for sources of pain or discomfort or disruption
  — GI issues: reflux, constipation, inflammation
  — Hidden seizures, restless legs

• Make room dark, simplify what’s in there
  — Turn off TV and other appliances in the room – or don’t have them in there
  — Look into ramping down EMF
  — Learn about “dirty electricity” and how to reduce it in your home environment
Different Sensory Universe

- Your child’s external senses may be hypertuned
  - Sight, sound, touch
  - External sensations: What’s okay to you may be too noisy or bright for them
- Internal sensations may not be so localized
  - May be hard for them to pinpoint sources of pain or discomfort
  - May not notice certain kinds of pain
  - **YOU MAY NEED TO HUNT HARD FOR PHYSICAL SOURCES OF PAIN THAT ARE CAUSING STRESS AND DISTURBING SLEEP AND BEHAVIOR**

Sensory Diet

- Plan a “sensory diet”
  - A personalized set of daily sensory inputs to maintain focus and organization
  - People with autism usually need extra support for this
    - In part to balance out distraction from internal noise and weak organization
- **Help with sensory diet and neuromotor reorganization**
  - Sensory Integration Therapy
  - Neuromotor training, e.g. Anat Baniel book *Kids Beyond Limits*
Learning

• EVERYBODY NEEDS TO LEARN
  – Just because they can’t talk doesn’t mean they aren’t smart
• GO FOR THE EXTRAORDINARY
  – Help them have a wide range of experiences
  – Give them manageable practical tasks and let them build up the successes they can achieve

RECIPE for improvement

POOR BANDWIDTH, LOTS OF CHAOS
• Poor food: few nutrients, many allergens
• Lots of toxins and infectious issues
• Lots of stress, pressure, too much too fast

GOOD BANDWIDTH, RICH ORGANIZATION
• Excellent food: high nutrient density, minimal allergens
• Minimal toxic and infectious burden
• Love, learning, respect, sensitive sensory input, savor each moment
LITTLE THINGS CAN MAKE A BIG DIFFERENCE

- Utilize support systems to help make things work together
- Go after the best thing with every choice you make
- Small things matter and they add up to big things
New Book with Critiques of Genetic Overexplanation

Ch.10 on Autism: From Static Genetic Brain Defect to Dynamic Gene-Environment-Modulated Pathophysiology
By Martha Herbert

Article detailing much content for this talk:
Autism: The Centrality of Active Pathophysiology and the Shift from Static to Chronic Dynamic Encephalopathy
By Martha R. Herbert, MD, PhD
2009

Autism: Oxidative stress, inflammation and immune abnormalities
Systems biology of autism told through stories of people who get better:

The Autism Revolution:
Whole Body Strategies for Making Life All It Can Be

www.autismWHYandHOW.org

www.transcendresearch.org

www.AutismRevolution.org

www.marthaherbert.com