Botanical & Nutritional Medicine for Women & Children

Aviva Romm, M.D.
Complex Patients...Sigh...
THE CONVENTIONAL RESPONSE?
Functional Medicine Approach
Root Causes, Root Solutions
Roots Causes

Heart Disease
- High Blood Pressure
- Anxiety
- Depression
- Thyroid Issues
- Hormone Imbalances

Cancer
- Allergies
- Irritable Bowel
- Auto Immune Disease

Diabetes
- Chronic Fatigue

Inflammation
- Poor Digestion
- Genetics
- Trauma
- Toxic Thoughts

Stress
- Lack of Exercise

Poor Diet
- Toxic Thoughts

Toxins
- Good Thoughts

Lack of Sleep
- Lack of Exercise

Poor Relationships
- Good Thoughts

Nutrient Deficiencies
- Good Thoughts

The Living Proof Institute | “ADD MORE LIFE TO YOUR LIFE”™
46-year-old Woman with FATIGUE

- Daytime somnolence
  - Has to nap for hours during the day
  - Even if has a good night's sleep still needs a nap in the afternoon
- “Tired all the time”
- Brain fog – can’t concentrate
- Muscle fatigue
  - With exercise
- Night Eating Syndrome
- Insomnia
  - Has anxiety about getting sleep
  - Wakes up during the night - 3 am - 7 am then goes back to sleep

Let’s go on to rooting out the cause(s) of fatigue...
The Fatigue History

- Understanding the role of fatigue on your patient’s QOL
- Describing fatigue
  - Onset (gradual, sudden, related to an illness, exposure)
  - Location (muscle weakness, “in my head,” generalized).
  - Type (heaviness in body, brain fog, sleepy, deeply fatigued)
  - Timing (morning, daytime, afternoon, nighttime)
  - Course (stable, improving, worsening)
  - Frequency (daily, constantly, cyclic)
  - Associated symptoms (sinus congestion, bloating, joint pain)
  - Associated behaviors (exercise, postprandial)
  - Alleviating behaviors (sleep, eating protein)
- Primary symptom or secondary symptom (i.e., tired, or tired of being sick)
The Fatigue Focused Physical Exam

• General appearance: level of alertness, psychomotor agitation or retardation, grooming
• Presence of lymphadenopathy
• Thyroid findings: Goiter, thyroid nodule, ophthalmologic changes
• Cardiopulmonary examination: signs of congestive heart failure and chronic lung disease
• Neurologic examination: muscle bulk, tone, and strength; deep tendon reflexes; sensory and cranial nerve evaluation.
Common Fatigue-Associated Conditions

- “Adrenal fatigue”
- Anemia
- Autoimmune conditions
- Caffeine use
- Cancer
- Chronic Fatigue Syndrome
- CVD
- Depression
- Diabetes, Dysglycemia
- Fibromyalgia
- Food allergies, intolerances
- Generalized inflammation
- Hypothyroidism
- Hyperthyroidism
- Intimate partner violence
- Lyme disease
- Medications (pains, blood pressure, antidepressants)
- Obesity
- Restless leg syndrome
- Sleep apnea
- Sleep disorders
- Stress, SES factors
- “UNEXPLAINED”
- Viral Infections (EBV, HSV, CMV)
Rule Out the Big Bad Things

- CVD, cancer, i.e., new onset/recent fatigue in women >45
- MS, MG, etc., Progressive or recurrent muscle weakness
- HIV, i.e., fatigue frequent infections
- Leukemia, i.e., Bruising
Inflammation: The Root of Fatigue

- Genetic factors
  - SNPs in cytokine genes
- Psychological factors
  - Stress, sleep
- Neuroendocrine factors
- Immune factors
  - Immune dysregulation
  - Viral reactivation

Infection, radiation, cancer treatment → Inflammation → Fatigue
Initial Conventional Labs for Fatigue

- Complete blood count with differential
- Chemistry screen (including electrolytes, glucose, renal and liver function tests)
- Thyroid stimulating hormone
- Creatine kinase, if pain or muscle weakness present
- Consider ESR

- Additional labs conventionally recommended only if history or physical exam findings suggest a need.
The Matrix & Symptom Organization

### The Patient’s Story Retold

#### Antecedents
- FH: Depression
- DM2
- CVD

#### Triggering Events
- "Rica diet"
- Childbirth

#### Mediators/Perpetuators
- 351b weight ↑
- NES
- ↓ Libido

### Physiology and Function: Organizing the Patient’s Clinical Imbalances

#### Assimilation
- **GERD (± PPI)**
- Gas/Bloating
- Chronic nausea
- Lactose intolerant, daily dairy intake

#### Structural Integrity
- Osteopenia
- Dental caries
- Joint pain

#### Communication
- "Cold all the time"

#### Defense & Repair

### Emotional
- Anxiety
- "Brain fog"
- Hx PPD

### Energy
- Daytime somnolence
- Exercise intolerance

### Biotransformation & Elimination
- Multiple amalgam fillings
<table>
<thead>
<tr>
<th>TIME</th>
<th>FOOD/BEVERAGE AMOUNT</th>
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<tbody>
<tr>
<td>AM 7:00</td>
<td>Rice, Vegetable, Bean Soup</td>
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<tr>
<td>AM 10:00</td>
<td>Half Banana, 1/4 Apple</td>
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<tr>
<td>PM 1:00</td>
<td>1 cup of soup, 1 (beans)</td>
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<tr>
<td>6:00</td>
<td>Yogurt with rice (100 mg)</td>
</tr>
<tr>
<td>6:50</td>
<td>Rice with curry (500 mg)</td>
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The Matrix & Labs

**Assimilation**
- 4+ yeast
- S180
- Ooc/Tox, LPS, IgG, IgM

**Defensive & Repair**
- CRP, ESR

**Structural Integrity**
- Endoscopy
- Sleep study

**Mental**

**Emotional**
- Ferritin, Low Hg
- AM cortisol, H pm cortisol

**Energy**

**Communication**
- Iodine (serum)
- TSH 4.8, RT3 Abs wNL
- F. insulin 1188 (+)
- FBG 2hr 145 (+)
- PTH 56, Lp IR 55

**Transport**
- MTHFR +/+
- Detox issues
- Hg (on ion)
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<tr>
<th>Pathogenic Bacteria</th>
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<tr>
<td>Helicobacter pylori</td>
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<tr>
<td>E. coli 0157:H7</td>
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<tr>
<td>Clostridium difficile</td>
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<tr>
<td>Camplyobacter sp.</td>
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<table>
<thead>
<tr>
<th>Yeast/Fungi</th>
<th>Expected Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeast/Fungi; taxonomy unavailable.</td>
<td>$+4 \Rightarrow 100,000$ pg DNA/g specimen</td>
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</table>

A taxonomy unavailable finding may indicate ingested mold. The higher the number, the greater the indication for treatment, particularly when accompanied by clinical symptoms.

<table>
<thead>
<tr>
<th>Parasites</th>
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<tr>
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<table>
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<tr>
<td>Firmicutes</td>
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<tr>
<td>Bacteroidetes</td>
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DNA Abnormal

Phylogenetic Abnormal

Abnormal
### 2155 GI Effects® Sensitivity Fungi Profile - Stool

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<thead>
<tr>
<th>Pharmaceuticals</th>
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<th>Resistant</th>
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<tr>
<td>Amphotericin</td>
<td>S</td>
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<tr>
<td>Fluconazole</td>
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<td>R</td>
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<tr>
<td>Itraconazole</td>
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<tr>
<td>Ketoconazole</td>
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<td>R</td>
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<tr>
<td>Nystatin</td>
<td>S</td>
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<table>
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<th>Botanicals</th>
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<tr>
<td>5-Hydroxy-1,4-naphthoquinone</td>
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<td>R</td>
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<tr>
<td>Black Walnut</td>
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<td>Alliin</td>
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<td>Garlic</td>
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<td>Arbutin</td>
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<td>Uva Ursi</td>
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<td>Artemisinin</td>
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<td>Wormwood</td>
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<tr>
<td>Berberine</td>
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<td>Goldenseal</td>
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<tr>
<td>Caprylic acid</td>
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<td>Octanoic acid</td>
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<td>Carvacrol</td>
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<td>Quinic Acid</td>
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<td>Cats Claw</td>
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<td>Thymol</td>
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<tr>
<td>Oil of Thyme</td>
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<tr>
<td>Undecylenic acid</td>
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<tr>
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# ARRAY 2

**Intestinal Antigenic Permeability Screen**

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<thead>
<tr>
<th>Antigen</th>
<th>Normal</th>
<th>Equivocal*</th>
<th>Out of Range</th>
<th>Num Val</th>
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<tbody>
<tr>
<td>Actomyosin IgA**</td>
<td>X</td>
<td>X</td>
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<td>Occludin/Zonulin IgG</td>
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<td></td>
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<tr>
<td>Occludin/Zonulin IgA</td>
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<td></td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Occludin/Zonulin IgM</td>
<td>X</td>
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<td>1.0</td>
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<tr>
<td>Lipopolysaccharides(LPS)IgG</td>
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<tr>
<td>Lipopolysaccharides(LPS)IgA</td>
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<td>Lipopolysaccharides(LPS)IgM</td>
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<tr>
<td>Gluten-Associated Cross-Reactive Foods &amp; Foods Sensitivity**</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>----------------------------------------------------------</td>
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<td><strong>ARRAY 4</strong></td>
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<table>
<thead>
<tr>
<th>Food</th>
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<th>Numeric Value</th>
<th>REFERENCE (ELISA Index)</th>
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<tbody>
<tr>
<td>Rye, Barley, Spelt, Polish Wheat</td>
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<td>&lt;0.4</td>
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<td>Cow's Milk</td>
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<td>Casein (Alpha &amp; Beta)</td>
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<td>Whey Protein</td>
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<td>Chocolate (Milk)</td>
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<td>Yeast</td>
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<td>Millet</td>
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<td>Teff</td>
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<td>Egg</td>
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<tr>
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<tr>
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<td>0.94</td>
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<td>Gluteomorphin + Prodynorphin IgG</td>
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<td>0.63</td>
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<td>Gliadin-Transglutaminase Complex IgG</td>
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<td>Transglutaminase-2 IgG</td>
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<td>1.00</td>
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<td>1.16</td>
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<td>1.31</td>
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Matrix: Organize a Root Cause Assessment

Physiology and Function: Organizing the Patient’s Clinical Imbalances

Assimilation
- SIBO
- Yeast / dysbiosis
- Osteopenia
- Hypothyroidism / I- deficiency
- Vit D deficiency
- Dysglycemia / Insulin resistance
- Overweight

Defense & Repair
- Anemia
- Adrenal overdrive / fatigue
- Detoxification / MTHFR +
- Metals (Hg)

Mental
- Emotional
- Spiritual
- Transport

Biotransformation & Elimination
Matrix: Organize Treatment
Using the Matrix to Trend Results

- **Mind/Mood**
  - Sleep improved, falling asleep more easily, no night waking
  - No NES on melatonin and 5-HTP
  - Rarely needs more than a brief rest in the early evening
  - Lavender oil and adrenal support with ashwagandha before bed

- **Assimilation**
  - SIBO – resolved after 1 course xifaxan, nausea improved also on HCL now and antimicrobial botanicals for support
  - 4+ yeast – cleared on repeat testing s/p nystatin, no gas, bloating
  - GERD sx resolved, off PPI, taking DGL, dietary changes made
  - Off of dairy

- **Defense/Repair**
  - Taking curcumin 1000 mg BID

- **Energy**
  - Anemia resolved; Hct >30 → 37.4, ferritin from 14 → 23 → 53

- **Biotrans/Detox**
  - Taking 5 mg methylfolate/day
  - To revisit Hg levels and amalgams

- **Transport**
  - LDL-P 1817, LDL-C 103, LDL-p 1084
  - A1C → 5.6
  - Glucose F93, 1hr 166, 2 hr. 116
  - Ins 1 hr 127s

- **Communication**
  - Vitamin D now 61s, reduced to 2000 units/day
  - TSH → started on Armour → TSH 1.0 FT3 2.9
  - Has lost 20 lbs, several pants sizes

- **Structural**
  - Joint pain improved, continuing curcumin
GIFX Post Treatment

### 2205 Microbial Ecology Profile

**Methodology:** DNA Analysts, Microscopic, EIA

<table>
<thead>
<tr>
<th>Yeast/Fungi</th>
<th>Expected Value</th>
</tr>
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<tbody>
<tr>
<td>No clinically significant amounts.</td>
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**Yeast/Fungi**
- Yeast overgrowth has been linked to many chronic conditions, in part because of antigenic responses in some patients to even low rates of yeast growth. Potential symptoms include diarrhea, headache, bloating, atopic dermatitis and fatigue. Positives are reported as $+1$, $+2$, $+3$ or $+4$ indicating $>100$, $>1000$, $>10000$ or $>100000$ pg DNA/g.

**Parasitology**

**Microscopic Exam Results:**
- No ova or parasites seen

**Parasitology**
- Parasite Recovery: Literature suggests that $>90\%$ of enteric parasitic infections are detected in a sample from a single stool collection. Increased sensitivity results from the collection of additional specimens on separate days. Parasites have been detected in 20-24\% of U.S. patients with mild to moderate GI symptoms.
SIBO
What Can Happen...

10 months later...
• Lost 25 + LBS and has kept it off.
• Says "Continue to feel much better because of you"
• “Anxiety has completely disappeared.”
• “My stomach doing so well” - able to take her supplements
• “Armour has helped so much” sex drive returning!
• “Sleep is perfect”
• “No joint pain”
• “Mood better than [I] believed possible”
• Still get tired around 5 pm
• Increased self-awareness: Diet - for 3 mo was so religious and lost so much weight. Started eating yogurt and gluten again - after a week started feeling unwell, couldn't walk properly - so went back off completely and within a week the inflammation is gone.
2 year old girl old w/JRA

- 2 yo girl old, dg with polyarticular JRA
- Fever x 1 week, ATC tylenol and ibuprofen
- → Gastritis, PPI x 8 months
- Developed polyarticular pain and swelling
- Diagnosed clinically by rheumatologist age 18 mo
- Chronic limp, pain → chronic NSAID use
- Born by NSVD, mother on insulin for poorly controlled GDM
- Live rurally, ? pesticide exposure, heavy metal contamination of water, ? arsenic exposure
- Rheumatologist ready to start S. on methotrexate
Additional Assessments & Diagnoses for Sarah

- Eczema
- Digestive symptoms, especially bloating, belly aches
- Antibiotic Use
- Gluten Intolerant
- Iron deficiency anemia
- Lead - Elevated Body Burden
- MTHFR +/-
THE GUT CONNECTION

• Immunological dysregulation is the cause of many non-infectious human diseases such as autoimmunity, allergy and cancer.
• The gastrointestinal tract is the primary site of interaction between the host immune system and microorganisms, both symbiotic and pathogenic.
• Disturbances in the healthy bacterial microbiota of the human gut during critical windows, and generally, results in dysregulation of adaptive immune cell development and response.
• Increased intestinal permeability leads to sensitization of the immune system due to breach of barrier between response to “self” and “other.”
Commensal Bacteria and Immune Development

- Inhibits epithelial NF-κB activation and inflammatory gene expression
- Activates CD4 cells in Peyer’s patches
- Activates CD8 or natural killer cells in intraepithelial leukocyte spaces
- Increases numbers of T and B cells, including CD86-positive cells
- Organizes the special relationships between T, B, and dendritic cells in the Peyer’s patches
- Increases the numbers of microfold cells
- Increases IgA producing B cells
- Hypertrophies Peyer’s patches and the development of germinal centers
The Timeline

- The day I was born!
- Got a dog.
- First day of school.
- Disney World vacation!
- Learned to ride a bike.
- Today I am 11 years old and I’m going into 6th grade.
THE MODERN TIMELINE

- Antibiotics
- Flora-Free Food
- Nature Deficit
- +/-BF'ing
- Cesarean
- PPIs, Ibuprofen
- Stress

MICROBIOME DAMAGE
Sample Trigger Data

- Infantile colic a harbinger of atopy in children.
- Positive association between the lactulose to mannitol ratio and the severity of the eczema after active treatment with probiotics. Impairment of the intestinal mucosal barrier appears to be involved in the pathogenesis of atopic dermatitis.

- Meta-analysis of 8 studies examining relationship between exposure to antibiotics and development of childhood asthma compared exposure to at least one course of antibiotics in first year vs. no exposure (12,082 children, 1,817 asthma cases). Risk of asthma was significantly increased in children receiving one or more courses of antibiotics during first year of life: OR was 2.05 (95% CI 1.41-2.99). Dose-response analysis showed increase in OR of 1.16 (95% CI 1.05-1.28) for each additional course of antibiotics.

- Cesarean section positively correlated with development of obesity and autoimmunity in children.
3 KEY AREAS OF GUT PERTURBATION

• Dysbiosis
• Hyperpermeability
• Chronic inflammation
What is DYSBIOSIS?

- Dysbiosis is loss of biodiversity, species, and reserves, “Loss of ancestral defenses.”
- Changes in species dominance from physiologic to pathologic
- Bacterial resistance of pathogenic species and even commensal species
- Lack of proper immunologic development and response
What is LEAKY GUT?
Barrier Protection

• An extremely important function of the intestine is its ability to regulate the trafficking of macromolecules between the environment and the host through a barrier mechanism.
• Together with the gut-associated lymphoid tissue and the neuroendocrine network, the intestinal epithelial barrier, with its intercellular tight junctions, controls the equilibrium between tolerance and immunity to non-self antigens.
• Zonulin is the physiological modulator of intercellular tight junctions involved in trafficking of macromolecules and, therefore, in tolerance/immune response balance.
• Gluten is a known up-regulator of zonulin activity which leads to down-regulation of the protein occludin and results in increased gut permeability.
The Healthy Epithelium

- Commensal bacteria play a role in maintaining the integrity of the intestinal epithelium.
- Intestinal epithelial cells (IECs) provide a physical barrier between luminal microbes and underlying intestinal tissues to control defense and tolerance.
- IECs express pattern recognition receptors (PRRs) and can recognize microbial pathogen-associated molecular patterns (PAMPs) and respond to intestinal microbes through secretion of cytokines and antimicrobial proteins and up-regulation of surface molecules that mediate intercellular interactions.
- Secretory IgA reduces intestinal proinflammatory signals and drives diversity in gut microbiota. Stress reduces SIgA.
- A defective barrier allows translocation of foreign proteins, LPSs, and can lead to endotoxemia, antibody formation and food sensitivities, allergic, and autoimmune responses. In a vicious cycle it also perpetuates disordered gut flora.
- Disruptions lead to disruptions in nutrition – many children end up anemic, low in vitamin D, depleted antioxidant status (ie glutathione).
- Endothelium also important for production of systemically important antioxidants reduction of which increases oxidative stress, as does the chronic gut inflammation so overall burden of oxidative stress increases.
LEAKY GUT & IMMUNE DYSREGULATION
STRESS & THE GUT

• “I feel it in my gut,” “I can’t stomach this,” “This makes me sick to my stomach”...
• Stress reduces SIgA
• Stress diverts blood flow from away from the gut
• Known impact on predominant species with changes seen in reduction in *Lactobacillus* and *Bifidobacterium* spp toward *Coliform* and *E coli*.
• Stress changes the chemical milieu which changes the food resources available for gut flora.
• Changes in neuro-immune system now known to be ubiquitous and completely interconnected and not really separate systems.
GUT HEALTHY DIET

• Smart start to solids; no food avoidance unless necessary +/- dairy products
• Food diversity
• REAL food
• Fiber
• Fermented foods
• Low sugar
• Avoid antibiotic exposures in foods
• Healthy daily (or age appropriate) evacuation
THE 4R PROGRAM

- **Remove**: Triggers and irritants
- **Replace**: Digestive enzymes and hydrochloric acid, for example, are replaced in this phase. Low B complex associated with low stomach HCL.
- **Repair**: Provide nutrients that nourish and heal the intestinal membranes and healthy flora. Consider L-glutamine, turmeric, licorice root extract (or DGL), marshmallow root, zinc, quercetin, and larch-arabinogalactans.
- **Reinoculate**: Prebiotics and probiotics, along with good quality fiber
REMOVE: THE ELIMINATION DIET

- Elimination phase: “classical approach” and “gold standard”
  - 2-6 weeks
  - Highly simplified diet
  - Avoiding common causes of food sensitivity
  - Daily symptom monitoring
  - Screen for eating disorder
  - Pros and cons of “all-in” vs. staged elimination
- Study findings are equivocal but some studies find definite improvement with use of elimination diet
- Most common foods in producing allergy symptoms are milk, eggs, chocolate, soy, citrus, nuts, wheat and corn
- Skin testing for allergens does not usually correlate with clinical symptoms
Elimination Diet

- Provocation/ "Testing" phase
  - Add one new food every 3-5 days
  - Start with foods eaten most frequently
  - Continue daily symptom monitoring
  - If no change in symptoms, food can stay in diet; if symptoms worse, food should be avoided as a possible cause
- Use of “rotation diet” concept
REPLACE

• Nutrients – gut permeability reduces nutrition
• Enzymes
• Betaine HCL
• B-6
REINOCULATE

- Probiotics, prebiotics, symbiotics
  - S. Boulaardi
  - Bifido spp, Lactobacillus spp.
  - VSL#3 (Bifidobacterium breve, Bifidobacterium longum, Bifidobacterium infantis, Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus paracasei, Lactobacillus bulgaricus and Streptococcus thermophilus)
  - Klare Therbiotic Infant
Probiotic Benefits

- Double-blinded, placebo-controlled, cross-over study, probiotic lactobacilli (Lactobacillus rhamnosus 19070-2 and L reuteri DSM 12246) were administered for 6 weeks to 41 children with moderate and severe atopic dermatitis. Significant decrease in the frequency of gastrointestinal symptoms during active treatment (39% during the placebo period versus 10% during active treatment, P=.002).
Prevention of Atopic Disease with Probiotics

- Double blind randomized placebo-controlled trial (n=132) of children with a strong family history of atopic disease
- Lactobacillus GG (1X 10^{10} CFUs) to mothers for 2-4 weeks prenatally and then to infants postnatally for six months
- Atopic eczema dx by age 2 in 23% (15/64) of probiotic group vs. 46% (31/68) in placebo group (RR 0.51 95% CI 0.32-0.84)
- Number needed to treat 4.5
Reduction in Allergic Rhinitis with Probiotic Treatment

- Nine of 12 RCTs reviewed by Cochrane that evaluated clinical outcomes in AR showed an improvement (lower reported AR scores and less medication use) due to the use of probiotics compared with placebo.
- Also, 5 of the 8 RCTs that referred to seasonal AR suggested an improvement in clinical outcomes.
- Nine RCTs that reported various immunologic measurements of allergy found no significant probiotic effects and no clear improvement in asthma.
Prevention of Atopic Disease with Probiotics

- Perinatal administration of the probiotic *Lactobacillus rhamnosus* strain GG (ATCC 53103), reduces incidence of atopic eczema in at-risk children during the first 2 years of life (infancy).
- At age 4, 14 of 53 children receiving *Lactobacillus* had developed atopic eczema, compared with 25 of 54 receiving placebo (relative risk 0.57, 95% CI 0.33-0.97).
- Skin prick test reactivity was the same in both groups: ten of 50 children previously given *Lactobacillus* compared with nine of 50 given placebo tested positive.
Prevention of Atopic Disease with Probiotics

- 7-year follow-up confirmed that the cumulative risk of developing eczema during the first 7 years of life was significantly lower in the probiotic group than in the placebo group.
- However, atopic sensitization was similar between the groups, suggesting that the preventive effect on eczema was not IgE-mediated.
Prevention of Atopic Disease with Probiotics

- Abrahamsson: cumulative incidence of eczema was similar in babies receiving *Lactobacillus reuteri* before delivery and up to 12 months old and the control group. The L. reuteri group did have lesser IgE-associated eczema during the second year.
- Kuitunen: 1223 mothers with infants at high risk for allergy were randomized to receive probiotic or placebo during the last month of pregnancy and their infants to additionally receive prebiotic galactooligosaccharide from birth until 6 months. No differences in the frequency of allergic diseases and sensitization after 5 years of follow-up.
- BUT...Less IgE-associated allergic disease occurred in cesarean-delivered children receiving a probiotics mixture.
Altered States

• Gut microbiota of children with atopy characterized by a predominance in *C. difficile*, *Coliform* species, and *S. aureus* compared with non-allergic children
Physiologic mechanisms for probiotics in atopic disorders

- TH1 vs. TH2 regulation: may help downgrade TH2 responses which lead to atopy (hygiene hypothesis)
- Systemic down-regulation of inflammatory processes by balancing the generation of pro and anti-inflammatory cytokines
- Capacity to reduce the dietary antigen load by degrading and modifying macromolecules in the gut
- Reverse the increased intestinal permeability characteristic of children with food allergy
- Enhance specific IgA responses frequently defective in children with food allergy
REPAIR

• Reduce inflammation from diet to allow healing diet
• Appropriate supplements especially zinc and L-glutamine.
• Botanicals
L-glutamine

- Amino acid
- Stimulates enterocyte repair and proliferation.
- Increases intestinal villous height, stimulates gut mucosal cellular proliferation, and maintains mucosal integrity.
- Prevents intestinal hyperpermeability and bacterial translocation.
- In inflammatory conditions, the availability of glutamine as an enterocyte fuel substrate is essential for the preservation of a functional barrier to microorganisms.
Zinc

- Considered to be a key factor for the preservation of structural integrity of the intestinal barrier
- Improves enterocyte repair, aids in repair of cells with rapid turnover – esp mucosa and immune system.
- Correction of zinc deficiency leads to a faster regeneration of the gut epithelium and increases the levels of enterocyte brush-border enzymes
- Also antioxidant
- Zinc absorption is inhibited by some non-digestible plant ligands, such as contained in corn, cereals, rice, legumes, which form insoluble complexes with zinc ions that are excreted in the stool.
- The amount of proteins is positively correlated with zinc bioavailability.
- Some proteins, such as casein in milk and soy protein, have been reported to have an inhibitory effect on zinc absorption
IgG Antibodies

• Bovine or serum derived
• Colostrum is the first natural food produced by female mammals during the first 24–36h directly after giving birth.
• Chemically, colostrum is a very complex fluid rich in nutrients, antibodies and growth factors. In cows the antibodies provide passive immunity to the new born calf, whereas the growth factors especially stimulate the growth of the gut.
• The other antimicrobial components of colostrum include lactoferrin, lysozyme and lactoperoxidase.
• Bovine colostrum has also been used as a raw material for immunonoglobulin-rich commercial products (immune milk preparations).
• These products can be given orally to patients who are suffering infections of the gastrointestinal tract or in order to prevent these infections.
• Several animal studies have shown that the growth factors in bovine colostrum, especially insulin-like growth factors, stimulate cell growth in the gut.

Playforda,RJ. Bovine colostrum is a health food supplement which prevents NSAID induced gut damage. Gut 1999;44:653-658.
Quercetin

- Flavonoid in red wine, tea, onions, kale, tomatoes, broccoli, green beans, asparagus, apples, and berries
- Anti-inflammatory
- May influence immune system function
- Demonstrates activity against retroviruses, parainfluenza, and respiratory syncytial viruses.

Dose: Typical dietary intakes are between 5 mg and 40 mg/day -- 250-500 mg/day with high consumption of fruits and vegetables, especially if eating peel. Supplement 250-500 mg 1-2x daily. (Question of nephrotoxicity > 722 mg/day)

Turmeric

What the Science Says

- NIH: positive studies for UC, Crohn’s, rheumatoid d/o
- In vitro and animal studies show it increases phase II enzymes and inhibits phase I CYP1A
- Antioxidant effects: Down regulates COX2, LOX, NFkB, AP-1, TNF

Safety

- Warfarin interaction, bleeding risk at high doses

Dose (Adult)

- 1200-2400 mg/d curcumin for IBD
- India: average daily intake = 60 mg curcumin (2.5 gm/d of turmeric)
- 20 mg black pepper/1 kg curcumin -> approx 2000% absorption increase

Chamomile

• Traditionally widely used
• Evidence based uses included
  • Anxiety/GAD
  • Colic (w/fennel, lemon balm)
  • Pediatric “stomach aches”
  • Diarrhea (w/apple pectin)
  • Dyspepsia (in Iberogast)
  • Oral mucositis

**Dose:** 1 ml TID

**Safety**

• May cause allergic reaction in some individuals (rare).


Ginger

What the Science Says

• Clinical research shows that taking ginger extracts can modestly improve pain in some patients with osteoarthritis
• May be comparable to ibuprofen in a dose of 500 mg twice daily
• Also compared favorably to diclofenac + glucosamine sulfate
• There is some preliminary evidence that ginger might be helpful for decreasing joint pain in patients with RA

Dose (Adult): 250 mg ginger extract four times daily, dosing may vary according to the preparation
Licorice

- Traditional uses: cough, colds, sore throat, GERD, gastritis
- Compounds in licorice increase local prostaglandin levels that promote mucus secretion and cell proliferation in the stomach
- Preparations without glycyrrhizin are called DGL

Dose
- 700-800 mg (760 mg)
- Chewable tablets

Safety:
- Avoid in pts with HTN, hyperald, on steroid.
- Likely safe in healthy adults when used at doses not exceeding 3 grams/d for periods up to 3-4 weeks.
Sarah’s Supplements

- Multivitamin
- Proprietary licorice blend containing licorice, ashwagandha, rehmannia, and wild yam.
- Chamomile tea
- Pro EFA Jr- Nordic Naturals, 1, twice daily
- Vitamin D3
- Curcumin concentrate with ginger and boswellia
- L-Glutamine
- Zinc
- Probiotic containing Lactobacillus and Bifido strains
Evaluation & Testing

- History reveals the cure
- Diet & nutrition review
- Digestion evaluation
- (Known) toxic or infectious exposures
- CBC, iron studies, ANA, ESR Lyme (WB)
- Celiac HLA, Gluten Abs
- EFA testing (omega 3, 6)
- Leaky gut via lactulose: mannitol
- Stool testing
- Detox studies
- Can consider IgG and IgM testing thru specialty labs
Sarah Gets Her Life Back!

• 8 months no need for NSAIDs, methotrexate no longer indicated
• Has had 1 (prescheduled) joint injection
• Per rheumatologist, only 1 joint (index finger) remains slightly swollen compared to 8 joints before starting care
• Able to run, play, dance without pain, just like other kids in family!
Fatigue References


JRA References


