Wisconsin Public Psychiatry Network Teleconference (WPPNT)

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WPPNT Reminders

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  – Enter the Webinar ID: 829 8074 2956#.
  – Press # again to join. (There is no participant ID)

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• Join online or by phone by 11 a.m. Central and wait for the host to start the webinar. Your camera and audio/microphone are disabled.
• **Download or view the presentation materials.** The evaluation survey opens at 11:59 a.m. the day of the presentation.
• Ask questions to the presenter(s) in the Zoom Q&A window. Each presenter will decide when to address questions. People who join by phone cannot ask questions.
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Integrative and holistic approach to Mental Wellness

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Disclosure

Owner of Trinergy Center for Integrative Psychiatry

and

Trinergy Ayurveda Wellness and Spa in New Berlin.

Thanks to IFM for use of their slides.
Overview

- Current stats for mental illness in US
- Debunking the “chemical imbalance” theory
- Holistic/integrative psychiatry approach
- Nature vs Nurture – Role of genetics
- Food as medicine
- If time permits - Patient examples
Mental Health in the US – CDC/WHO Stats

The country with the highest prevalence of mental illness - US

Over a 12-month period, 27% of adults in the U.S. will experience some sort of mental health disorder.

Depression – Most common type of MI & THE leading cause of disability by 2020. Also the costliest disease in terms of lost productivity and wages

nearly 50% of U.S. adults will develop at least one mental illness during their lifetime.
Mental Health in the US – CDC/WHO Stats

- About 1 in 54 children has autism spectrum disorder (ASD) – 2016 (while in 1975, it was 1 in 5000).
- Nearly 50% of U.S. adults will develop at least one mental illness during their lifetime.
- Economic burden of mental illness in the US—$300 billion in 2002.

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Recent research has indicated that changes in diagnostic practices may account for at least 20% of the increase in prevalence over time, however much of the increase is still unaccounted for and may be influenced by environmental factors.
The real cause of increasing autism prevalence?

- Autism
- Organic Food Sales

Sales ($ millions)

Individuals Diagnosed

r=0.9971 (p<0.0001)
How are we responding to this crisis?

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The Standard Psychiatric practice – Dr Julia Rucklidge’s Ted talk

Current Psychiatric Approach

- Psychiatric Medicines
- Psychotherapy
- Other
So, what’s our response?

- Pill for every ill
- Symptomatic treatment
- Quick fix approach
- Acute care approach for chronic illness
- And, where are we heading with this approach?
MH Med use in US – CDC/WHO Stats


13% of Americans over the age of 12 take an antidepressant

JAMA Update Dec 12, 2016: 1 in 6 US adults takes at least 1 psychotropic, 80% chronically.

2nd most common prescription is an Antidepressant

1 in 4 women ages 50 to 64 take an AD
Is this approach working?

Let’s take the example of Depression: STAR*D

Step 1+2: Recovery (6 months without relapse) Rate:

AD vs Placebo = 29% vs 36%

Long term outcomes seem to be poor.

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CONCLUSIONS AND RELEVANCE  Dose reduction/discontinuation of antipsychotics during the early stages of remitted FEP shows superior long-term recovery rates compared with the rates achieved with MT. To our knowledge, this is the first study showing long-term gains of an early-course DR strategy in patients with remitted FEP. Additional studies are necessary before these results are incorporated into general practice.
Is this approach working?

According to the World Health Organization, mental illness results in more disability in developed countries than any other group of illnesses, including CANCER & HEART DISEASE.
How are we doing so far?

Why? Because we do not have a framework to understand mental illness.
Where are we going wrong?

Let’s examine our current psychiatric practice

Patients are diagnosed based on an atheoretical system of symptoms & signs. (Did you hear of Election Addiction Disorder?)

Match “pills to the ills” aka symptomatic treatment

Main theory of psychopathology: “neurochemical imbalance”
Where are we going wrong?

• 60 -70 years of research but no “silver bullet”

• “symptom relief” Vs “illness remission”

• Well, when there is no “theory of disease causation” how can there be proper treatment.
Physicist Fritjof Capra

“The great shock of the 20th century science is that systems can’t be understood by analysis. The properties of the parts can only be understood by the whole.”
“It ain’t what you don’t know that gets you into trouble. It’s what you know for sure that just ain’t so.”

Mark Twain
(Is it time to put to rest Descartian Mind-body dualism?)
So, what can help?

**Longer-term outcome in the prevention of psychotic disorders by the Vienna omega-3 study**

G. Paul Amminger, Miriam R. Schäfer, Monika Schlögelhofer, Claudia M. Klier & Patrick D. McGorry

*Nature Communications* 6, Article number: 7934 (2015)
Vienna Omega 3 study

40 Omega 3 Vs 40 Placebo. All high risk for psychosis patients

12 weeks of 1.2 gm of Omega 3 fish oil

At end of 12 months – 4 of Omega 3 vs 16 of placebo group had psychosis

At end of 5 years – these improvements still seen

Functionally better – Omega 3 group.

All indices - Omega 3 group was better

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Holistic/Integrative Mental Health

A healing approach that uses both conventional and complimentary / alternative medicine to understand and treat psychiatric conditions.

Attempts to **find the root cause** of a person’s psychological problems and work towards achieving overall mental health and balance.

Diet, nutrition, lifestyle; are cornerstone of evaluation and therapy.
Holistic/Integrative Mental Health

- Recognizes the natural healing power of the organism
- Whole person medicine (look below the neck)
- Recognizes the importance of Lifestyle (diet and habits)
- High value given to the doctor-patient relationship

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IF YOU WANT TO TRANSFORM THE WAY YOU PRACTICE, YOU NEED A PLAN

CHANGING THE WAY WE DO MEDICINE, AND THE MEDICINE WE DO
FUNCTIONAL MEDICINE is a
- personalized, patient-focused (not disease-centered)
- systems-oriented model
- that addresses the underlying causes of disease
- engaging both patient and practitioner in a therapeutic partnership.
- empowers patients and practitioners to achieve the highest expression of health

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FM Paradigm: Overview

• Tools – The Difference

• New Framework for Interpretation of Clinical Information

• Physiological Systems vs. Diseases

• Continuum of Optimal Function to Disease – innate healing abilities of an organism

• Concept of comorbidity becomes obsolete

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Antecedents, Triggers, and Mediators (Engel’s Bio-psycho-social formulation?)

- Nutrition
- Sedentary Lifestyle
- Chronic Stress
- Poverty/Uninsured
- Environmental Toxicity
- Fragmented families and communities
- Indoor Living
- Aging Population

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One Condition: Many Imbalances

Inflammation  
Hormones  
Genetics and Epigenetics  
Diet and Exercise  
Obesity

One Imbalance: Many Conditions

Depression  
Heart Disease  
Depression  
Arthritis  
Cancer  
Diabetes
2 Basic tenets

Chronic disease results from the emergence of a disturbed metabolism.

*Lifestyle and environment* are the major factors altering gene expression that results in disturbed metabolism.
Chronic Diseases – How do they develop?

- Poor Lifestyle
  - Increased production of Corticosteroids
    - Altered Metabolism
    - Free Radical production
      - Metabolic Diseases
      - Degenerative Diseases
      - Immunological Diseases

- Mental Stress
  - Altered Immune status

- Toxicity
  - Free Radical production

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New Paradigm

• A team of Functional medicine trained professionals
  • A Super-generalist MD/DO, Functional nutritionist, Lifestyle coach, movement/exercise coach, Stress reduction therapist, “relationship therapist” (all these roles can be offered by one person too!), massage therapist, etc.

• We (patient & physician) figure out how everything is connected…Educating patient is of paramount importance.

• GPS system: Retrace steps towards health & vitality (continuum concept)

• Emphasize self care and resilience
New Paradigm

• Root Cause medicine

• Personalized and individualized approach

• Address the 5 causes of any illness:
  – Toxins, allergens, infections, diet and stress – start with the gut anyway!

• Ingredients for optimal function
  – Food, nutrients, hormones, environment (air, light, water), movement, rhythm, love, meaning/purpose of life
What we know now....

human mind-body system = complex web of interconnections

Brain chemical imbalance – is it cause or effect?

Diseases are downstream effects of upstream mechanisms

Gut, immune system, hormonal system, genetics, microbiome, nutrition, etc. are all involved in mental health

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Recent advances in psychopathology

• Methylation genes/Homocysteine metabolism: MTHFR & other SNP’s

• Inflammation

• Genetic vs Epigenetics

• Gut & Microbiome
Methylation cycle

- **Urea**
  - Arginine → Ornithine → Urea → Ammonia → Citrulline + NO

- **Neurotransmitter**
  - Tryptophan → Tyrosine → Serotonin → NOS → Dopamine

- **Folate Cycle**
  - dUMP → Thymidine synthesis → BH4

- **Methionine Cycle**
  - Methionine → THF → Methionine
  - DNA, RNA, Protein, Lipids

- **Transsulfuration**
  - Ammonia → Cystathionine → Cystine + α KG
  - Taurine → Sulfite → Glutathione
  - Molybdenum Oxidase (SUOX)

- **Adapted from Dr. Amy Yasko**
Inflammation

Unexpected role of interferon-γ in regulating neuronal connectivity and social behaviour

Anthony J. Filiano1,2, Yang Xu3, Nicholas J. Tustison4, Rachel L. Marsh1,2, Wendy Baker1,2, Igor Smirnov1,2, Christopher C. Overall1,2, Sachin P. Gadani1,2,5,6, Stephen D. Turner7, Zhiping Weng8, Sayeda Najamussahar Peerdade3, Hao Chen3, Kevin S. Lee1,2,5,9, Michael M. Scott4,10, Mark P. Beenakker5,10, Vladimir Litvak8* & Jonathan Kipnis1,2,5,6,8

21 JULY 2016 | VOL 535 | NATURE | 425

ORIGINAL ARTICLE

Antidepressant activity of anti-cytokine treatment: a systematic review and meta-analysis of clinical trials of chronic inflammatory conditions

Molecular Psychiatry (2016) 00, 1–9

www.nature.com/mp
Lifestyle and environment are the major factors altering gene expression that results in disturbed metabolism.

Genes are the ‘blue print’ for building the human organism.

Environment provides the ‘building blocks’ (and this is a repetitive, continuous process)

Genetic code vs Zip code (Case in point – Covid19)
Genetic Vs Epigenetics

One gene – one protein-one disease: this has been disproven. Human genome has only 26K genes; yet complex phenotype. Rest of gene material – what is it?

Epigenetics: Factors that influence the expression of genes – food, internal/external, immediate/distant environment

Exposome: exposure to environmental toxins

Nutrigenome: Effect of nutrients or lack thereof on the genome
THE HUMAN MICROBIOME PROJECT SAYS THE HUMAN BODY HAS 100 TRILLION MICROSCOPIC LIFE FORMS LIVING IN IT.

YOU CALL THIS LIVING?
Gut Microbiome – Current research

• human genome – only 26,600 protein encoders – yet complex phenotype

• Rice genome – has 46,000 protein encoders – yet simple phenotype

• Complexity due to the genome of 1000s of species of gut microbiome

• 1 :10 human to bacterial cells/genome

• 3 kgs of bacteria in the gut
Functions of the microbiome:

• Synthesis of GABA

• Synthesis of BDNF

• Certain bacterial toxins produced due to gut dysbiosis implicated in various disorders – PANDAS, schizophrenia, autism, dementia etc.

• Beneficial role of certain probiotics in treatment of various illnesses.
Case Example

- 34 yr old SWM seeking treatment for depression, anxiety & ADD

- Trigger: inability to progress in academics.

- Antecedents: genetic loading of anxiety, depression, Allergies/asthma/hives/gut issues/food sensitivities since childhood – Recent hx of rptd strep throat– ch and rptd abx exposure leading to c-diff colitis,

- Mediators: poor self care/diet, poor coping skills, ongoing gut/adrenal-stress issues, stressful life events including trauma growing up.
Case Example

• Functional Evaluation:
  • Leaky gut w food sensitivities, SIBO, Ch adrenal fatigue, early metabolic syndrome, OCD

• Treatment:
  • Heal the gut first!
  • 4R protocol – remove, repair, replace, re-inoculate
  • Treat adrenal fatigue: adaptogens, Vit D, rest, relaxation techniques, love & connections, meditation.
  • Evaluate MTHFR gene assay and supplement as needed (Betaine, 5mthf, methylb12, NAC, SAMe etc).
  • Intensive CBT/ERP outpt therapy for OCD.
But why focus on the gut???

**IFM mantra**

“When in doubt, heal the gut first!”
“Gut is not like Vegas. What happens in the gut does not stay there.”
ORIGINAL ARTICLE

Intestinal cell damage and systemic immune activation in individuals reporting sensitivity to wheat in the absence of coeliac disease

Melanie Uhde, ¹ Mary Ajamian, ¹ Giacomo Caio, ² Roberto De Giorgio, ² Alyssa Indart, ¹ Peter H Green, ¹,³ Elizabeth C Verna, ¹ Umberto Volta, ² Armin Alaedini ¹,³,⁴
Conclusions  These findings reveal a state of systemic immune activation in conjunction with a compromised intestinal epithelium affecting a subset of individuals who experience sensitivity to wheat in the absence of coeliac disease.
What is Leaky Gut?
Leaky Gut Affects the Whole Body

Brain
- Depression
- Anxiety
- ADHD

Skin
- Acne
- Rosacea
- Eczema
- Psoriasis

Sinus and Mouth
- Frequent Colds
- Food Sensitivities

Thyroid
- Hashimotos
- Hypothyroidism
- Graves
Leaky gut, leaky brain: the role of zonulin

The discovery of ZONULIN began with a failed attempt to develop a cholera vaccine. ZONULIN is an antigen that can OPEN TIGHT JUNCTION PROTEINS. GIANDIN & INTESTINAL BACTERIA are the main triggers for ZONULIN RELEASE. ZONULIN has been identified as a biomarker for many conditions including: COELIAC DISEASE, INFLAMMATORY BOWEL DISEASE, TYPE 1 DIABETES, ASTHMA, MULTIPLE SCLEROSIS, SCHIZOPHRENIA AND CANCER.

ZONULIN AND THE LEAKY BRAIN HYPOTHESIS: 1-4

1. ZONULIN RELEASE
   - Release of zonulin triggered by endothelial cells exposure to gliadin and pathogenic bacteria.
   - Zonulin stimulates opening of TJs.
   - Increase in intestinal permeability.
   - Increased passage of streptococci, stool, ammonia, propionate.
   - L. Rhamnosus (LGG) increases TJ protein gene expression, inhibits zonulin release and restores intestinal permeability.
   - L. Plantarum and L. Gasseri increase TJ protein gene expression, inhibits zonulin release and restores intestinal permeability.
   - ZINC enhances TJ barrier function.
   - PROBIOTICS may competitively inhibit pathogenic bacteria than stimulating zonulin release.

2. IMMUNE RESPONSE DEVELOPMENT OF LEAKY GUT
   - Increased exposure to stressors triggers an immune response and inflammation.
   - A vicious cycle develops where inflammation and tissue damage further increase intestinal permeability, leading to further passage of stressors, perpetuating the cycle.
   - Altered immune responses and increased inflammation in the gut also interact with HPA axis and neurotransmitter metabolism.
   - PROBIOTICS modulates immune response and down-regulates inflammation, thereby promoting healthy gut barrier function.
   - ZINC supports healthy immune function and TJ barrier function.

3. IMMUNE RESPONSE DEVELOPMENT OF LEAKY BRAIN
   - Entry of zonulin, tight junction proteins, antigens, pathogens, toxins, bacterial lipopolysaccharide and inflammatory cytokines from intestinal lumen into lamina propria.
   - Tissue damage.
   - Immune response.
   - Inflammation.
   - Immune dysfunction.

4. BLOOD BRAIN BARRIER DYSFUNCTION - LEAKY BRAIN
   - The BBB includes endothelial cells and TJ's.
   - Astrocytes located beneath endothelial cells prevent entry of unwanted molecules across the BBB.
   - Zonulin from the blood binds to zonulin receptors on the BBB.
   - Zonulin stimulates opening of TJs.
   - Similar to what happens in leaky gut, stressors including zonulin, TJ proteins, antigens, pathogens, toxins, bacterial lipopolysaccharide, inflammatory cytokines and antibodies are allowed passage into the brain.

5. IMMUNE RESPONSE NEUROINFLAMMATION
   - Increased passage of unwanted molecules causes damage to astrocytes.
   - Immune response is stimulated by microglia.
   - A vicious cycle of increased passage of stressors and inflammation develops, leading to neuroinflammation.
   - Neuroinflammation can also impact on brain communication with the gut and HPA axis.
   - Chronic neuroinflammation has been associated with various conditions including mood disorders, Alzheimer's disease, autism spectrum disorders, dementia, schizophrenia, cognitive decline and psychiatric disorders.
The Standard Psychiatric practice
Holistic approach....
To recap: What are the Primary Causes of Disease - What do You Need to Get Rid of?

• Poor diet (SAD)

• Stress (physical, psychological)

• Toxins (biologic, elemental, synthetic)

• Allergens (food, mold, dust, animal products, pollens, chemicals)

• Microbes (bacteria, ticks, yeast, parasites, viruses, gut microbial disruption)
What Do We Need To Thrive? For Optimal Functioning?

• Foods (protein, fats, carbohydrates, fiber)

• Vitamins, minerals, accessory or conditionally essential nutrients, hormones

• Light, water, air – Access to natural environment

• Movement, Rhythm

• Love, community, connection, Meaning, purpose
Diet & Lifestyle change.....

.........is fundamental to recovery from any chronic illness, including mental illness.
As you sow, so shall you reap.

When we move from habits that are harmful to behaviors that are beneficial, we reap the benefits in the form of improved health and vitality.
“Let food be thy medicine and medicine be thy food” - Hippocrates

“the body is the outcome of food. Even so, disease is the outcome of food. The distinction between ease and disease arises on account of wholesome nutrition or the lack of it.” Charaka Samhita

“When diet is wrong, medicine is of no use. When diet is correct, medicine is of no need”. Ayurvedic proverb
Food As Medicine

“You are what you eat”

But now, we are learning that...

We are what we eat, digest and absorb.

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We are what we eat, digest and absorb!
How does Food Act as medicine?

Provides nutrients – many illnesses directly related to poor nutrient quality of food. Scurvy to ADHD

Nutrigenomics: food can directly affect gene expression for better or worse

Nutritious foods contain beneficial substances like vitamins, fatty acids, antioxidants, phytonutrients, minerals, fiber and much more.

A modern problem: Toxicity of food! From pesticides to artificial dyes, flavors, chemical preservatives, and genetic modification.
How does Food Act as medicine?

- Controls inflammation.
- Balances blood sugar.
- Detoxifies and eliminates toxins.
- Balances hormones.

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Food is medicine

Not just Calories.

Food is energy

Food is connection

Food is memory

Food is information – to upgrade or downgrade our bio-software on a daily basis.
Food as medicine

**Favor**
- Food that is freshly prepared, seasonal and indigenous

**Favor**
- Organic & whole foods

**Avoid**
- Processed, refined food, food w dyes, preservatives, pesticides, additives, hormones, GMO's

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Food as medicine

- Balanced diet – should have all 6 tastes – salt, sweet, sour, bitter, pungent & astringent.
- 3 main components: Proteins, Fats, Carbohydrates
- Many minor components: vitamins, minerals, phytonutrients, essential elements etc.
- Food preparation: Cook in stainless steel, cast iron, ceramic or earthen ware.
- Variety is the name of the game – switch grains, vegetables, protein sources – guided by the season.
Food as medicine

Eat Organic as much as possible: ewg.org is a good resource.

AVOID: Plastics at all cost!

Oils: Ghee, olive oil, coconut oil, peanut oil. Avoid grain oils/soy oil.

Eat like our grandparents

Develop body-mind awareness

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Patient Examples:

• Anxiety: https://trinergyhealth.com/testimonial-holistic-anxiety-cure/
• Autism: Next Slide.
• Depression in 11 year old: https://trinergyhealth.com/reating-child-depression-with-integrative-psychiatry/
• Migraines: https://trinergyhealth.com/amys-testimonial-no-more-migraines/
• Schizophrenia:
  • https://trinergyhealth.com/schizophrenia-psychosis-novel-solutions-to-an-old-problem/
Autism and Hashimoto’s Patient Example

• 17 year old SWF with ASD, living in group home.

• On Abilify, lithium, clonazepam for severe behavioral problems of agitation, emotional outbursts and “psychosis” – laughing, talking to self, severe stimming. But no improvement with meds and usual standard of care.

• Diagnosed with hypothyroidism and under care of endocrinologist.

• On review, her TSH was 120 !!! Highest value of my career and this was after 6 months of treatment with synthroid by endo. Working hypothesis was that lithium was causing the hypothyroidism
Autism & Hashimoto’s Patient Example

• First visit in Aug 2019.
• I ordered more labs – as expected she had severely elevated TPO, TG antibodies. As long as this inflammation is going on, Synthroid can barely touch the TSH levels.
• Group home staff engaged in this new paradigm of care.
• Patient put on elimination diet – dairy, gluten, corn, soy, eggs for 6 months. Still eliminating dairy, gluten, corn and soy.
• Targeted supplements – based on FM and Ayurveda.
• Focus on nutrient supplementation, anti-inflammation and detoxification.

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Autism & Hashimoto’s Patient Example

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## Autism & Hashimoto’s Patient Example

<table>
<thead>
<tr>
<th>Test</th>
<th>Range</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>T3 Reverse (ng/mL)</td>
<td>8-25</td>
<td>Feb 2020</td>
</tr>
<tr>
<td>T3, Free (pg/mL)</td>
<td>3.0-4.7</td>
<td>May 2020</td>
</tr>
<tr>
<td>T4, Free (ng/mL)</td>
<td>0.8-1.4</td>
<td>Sep 2020</td>
</tr>
<tr>
<td>Thyroglobulin (IU/mL)</td>
<td>&lt; OR = 1</td>
<td>Jan 2020</td>
</tr>
<tr>
<td>Thyroid Peroxidase (IU/mL)</td>
<td>&lt;9</td>
<td>Mar 2020</td>
</tr>
<tr>
<td>TSH (mIU/L)</td>
<td>0.77</td>
<td>Oct 2020</td>
</tr>
<tr>
<td>TSI (%) baseline</td>
<td>&lt;140</td>
<td>Feb 2020</td>
</tr>
</tbody>
</table>

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Here’s what the 15 year old boy’s mom had to say...

• "On another note, we started the elimination diet as a family and we're loving it! Everybody feels better, our son, most of all. His color and mood are improved and he's being as diligent as a 15-year old can be. He's very motivated which is new! We'll get the blood work done this Saturday. I'll be very interested to hear what you have to say about the two DNA reports. I cried when I saw them; with my cursory understanding, I was both relieved and horrified to think that after 8 years of struggle; diet and massive doses of Vitamin D might be our best responses to his poor mental health. I feel angry at the traditional medical establishment for the massive misinformation. At the same time, I'm looking forward to doing something other than trying to survive as a family. Thank you for helping us take the first steps toward healing"
"Eat food. Not too much. Mostly plants."

-Michael Pollan

Last but not the least....
Questions ???

Thank you