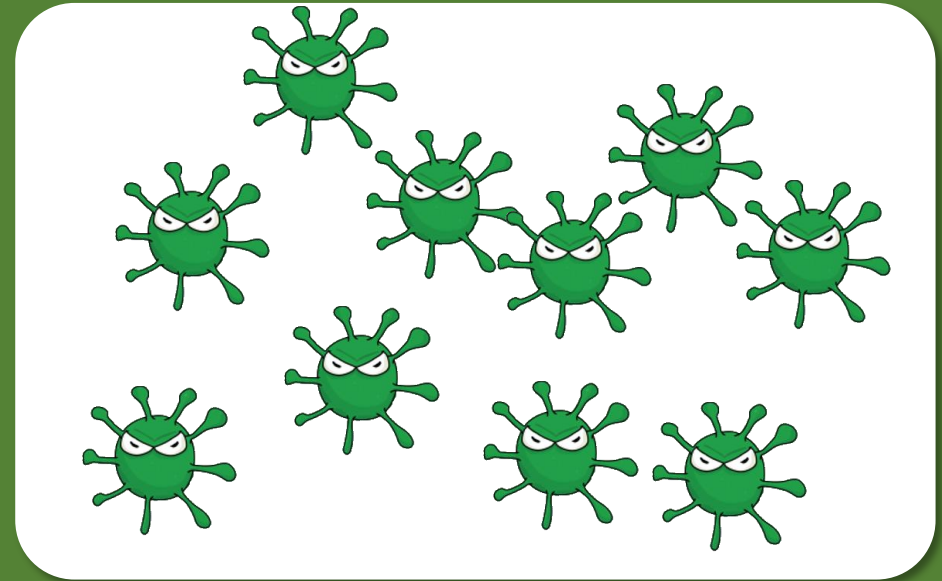
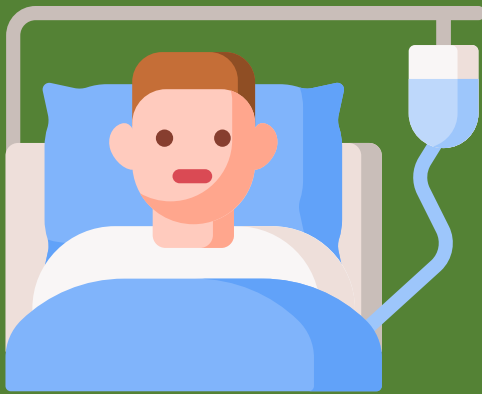


Mold – Candida - Histamine

**ENZYMATIC HEALING:
Tackling With Nutrient Intervention, and Enzyme Therapy**

Sponsored by: Transformation Enzymes



By: Dr. Gail Clayton DCN, CNS, MS, RPh, LDN



WHERE DO WE START?

Remove

- Remove toxin exposure
- Mold Detox Diet
- Food allergens
- Clean up lifestyle
- Gut pathogens
- STRESS - Limbic Retraining

Repair

- Gut repair nutrients
- Anemias
- Dysglycemias
- Cell Membrane repair
- Adrenal Support
 - Electrolytes, Vit C, Minerals, Adaptogens
- Stabilize histamine – OTC, Rx, Natural antihistamines:
 - Zyrtec, Claritin
 - Quercetin, Nettles
 - Polyphenols
 - Enzymes

Deep Dive

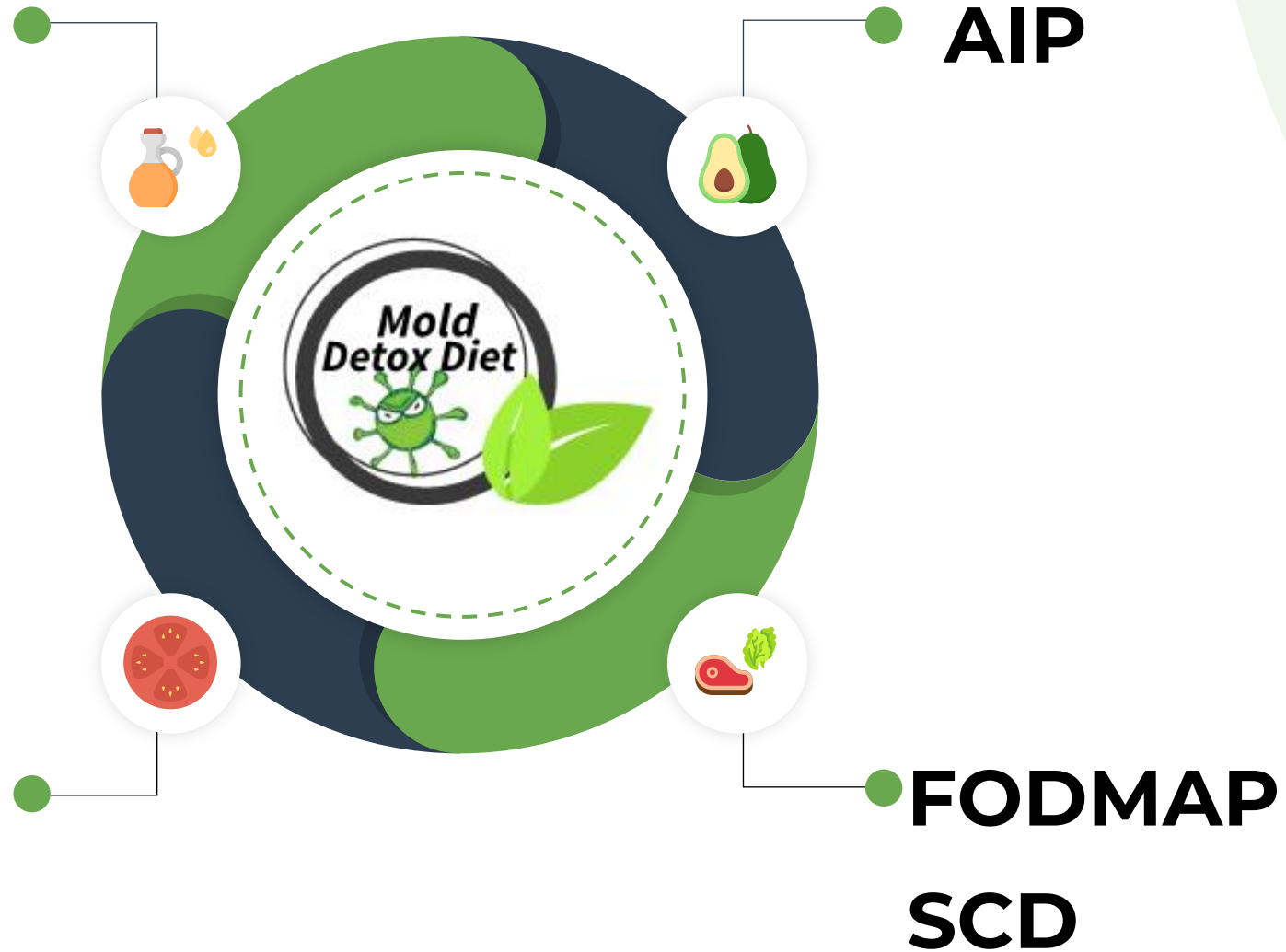
- Organic Acid testing
- Stool Testing
- Fix Nutrient deficiencies
- Food sensitivity Testing
- Conventional labs: CBC w/diff + platelets, CMP, thyroid panel, lipid/cholesterol, Vit D



IMPORTANCE OF DIET

Ketogenic

AIP



**Low
Histamine**

**FODMAP
SCD**

www.molddetoxdiet.com



REPAIR AND RESTORE CELL MEMBRANES

STOP EATING AND DOING THINGS THAT DAMAGE YOUR MEMBRANES!

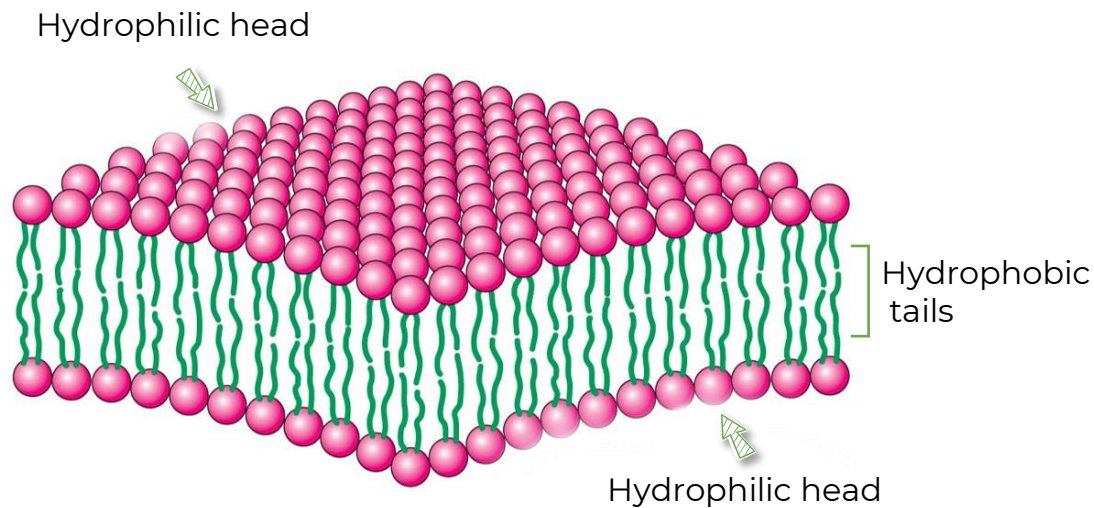


Figure 1.9b

Biochemistry: A Short Course, Second Edition
© 2013 W. H. Freeman and Company



No air fresheners, fragrances, smoking



Choose safe personal care products and cleaning products



Clean up diet – Mold Detox Diet



Balance fatty acid intake Omega **6:3** ratio should be **4:1**, **Avoid commercial cooking oils**



Phospholipids, Vitamin E & C, Glutathione, Digestive support & enzyme therapy



HISTAMINE METABOLISM: DAO AND HNMT



GI tract - DAO



Genetic



Riboflavin (B2), folate, Mb, Cu



Enzyme supplementation



Dysbiosis



CNS - HNMT



Methylation with B6, B12 & folate



Minerals – Mb, Cu, Se, Zn



Vitamin A & D



Methyl Donors: SAMe/SAH, glycine, Betaine, Sarcosine



CLINICAL PEARL:

CNS symptoms does not mean there isn't a DAO deficiency!



FIGHT OR FLIGHT



STRESS AFFECTS EVERY SINGLE ORGAN

- 75-95% all doctor visits stress-related
- Mycotoxins cause undue stress burden



AMYGDALA ANALYZES ALL INCOMING STIMULI

- THREAT? Stress chemistry released
- Histamine, Epinephrine, Norepinephrine, & Dopamine





COMBINED STRESSORS

Stress + Gut Dysbiosis + Infections + Blood Sugar Dysregulation + Obesity



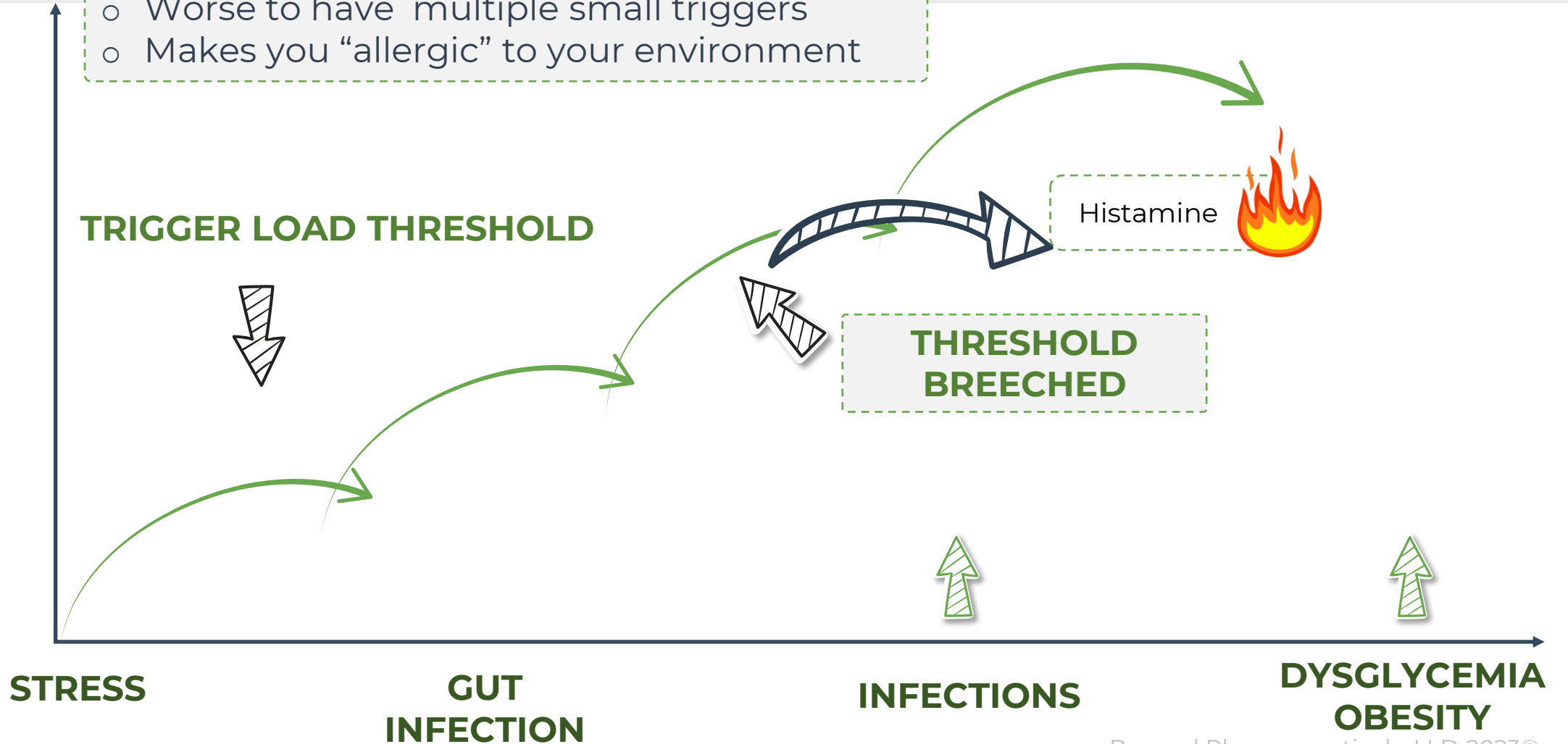
**LOWERING “TRIGGER LOAD” THRESHOLD
IMPORTANT WITH HISTAMINE
INTOLERANCE**





TRIGGER LOAD

- Combination of stressors
- GOAL = lower trigger load
- Worse to have multiple small triggers
- Makes you “allergic” to your environment





RETRAIN THE BRAIN & APPLY STRESS-REDUCING ACTIVITIES

**FIGHT
OR
FLIGHT**



**Difficult to turn
back off. Stays
chronically alert!**

**REST
AND
DIGEST**



**Must retrain the brain to
not respond to normal
incoming stimuli!**



Retraining the brain to let go of the stress response is an important part of restoring the immune response!



CHIEF COMPLAINTS – CASE STUDY: C.D. 53 y.o. female

MAIN SYMPTOM COMPLAINTS

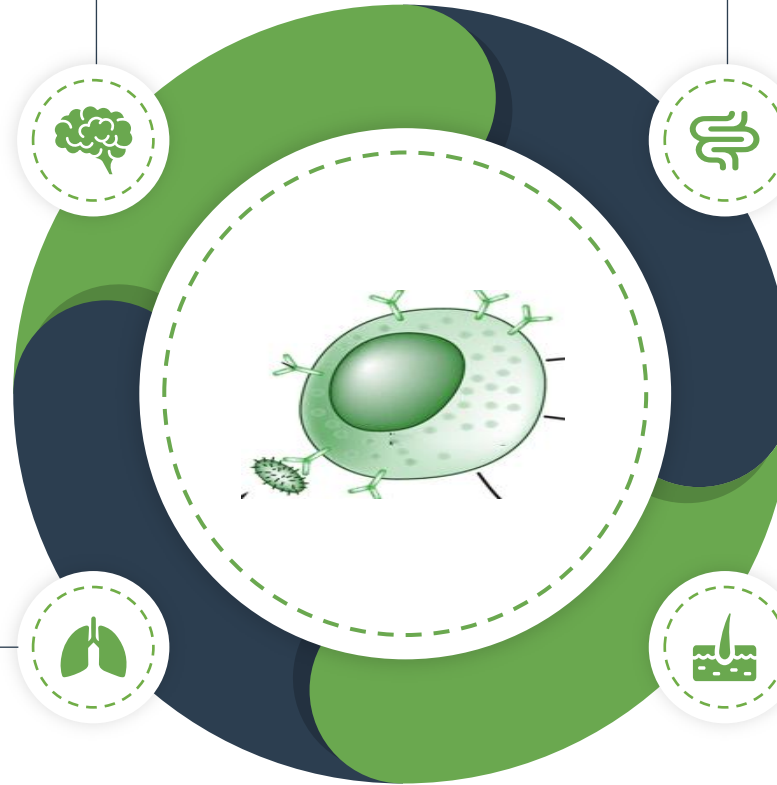
“Overall not feeling well for 10 years – have gotten worse after working with several NDs and have developed new issues”

CNS HORMONAL

- ✓ Brain fog
- ✓ Overweight
- ✓ Palpitations
- ✓ Horrible sleep

GUT

- ✓ Bloating
- ✓ GERD
- ✓ Loose stools



RESPIRATORY/EYES

- ✓ Reduced night vision
- ✓ Sinus congestion
- ✓ Sneezing
- ✓ Loss of sense of smell

SKIN

- ✓ Dry skin
- ✓ Flushing
- ✓ Brittle nails
- ✓ Psoriasis



DIET & ATMs: C.D.



CURRENT DIET CONTRIBUTORS

- ALLERGENIC FOODS: wheat, gluten, nightshades, peanuts, nightshades, dairy, corn, nuts, shellfish, eggs
- Intolerant histamine-related foods
- Chocolate – burning in roof of mouth
- Soy – Nasal stuffiness
- Seems to be sensitive to some nightshades
- Sugar cravings
- Insufficient vegetable qty & variety
- Excessive fruit intake
- Lacking in fiber

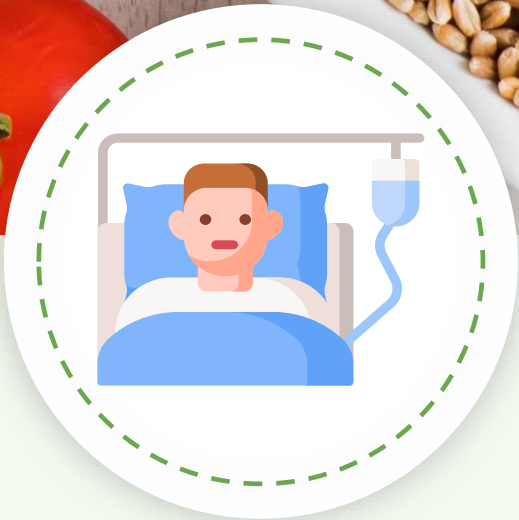
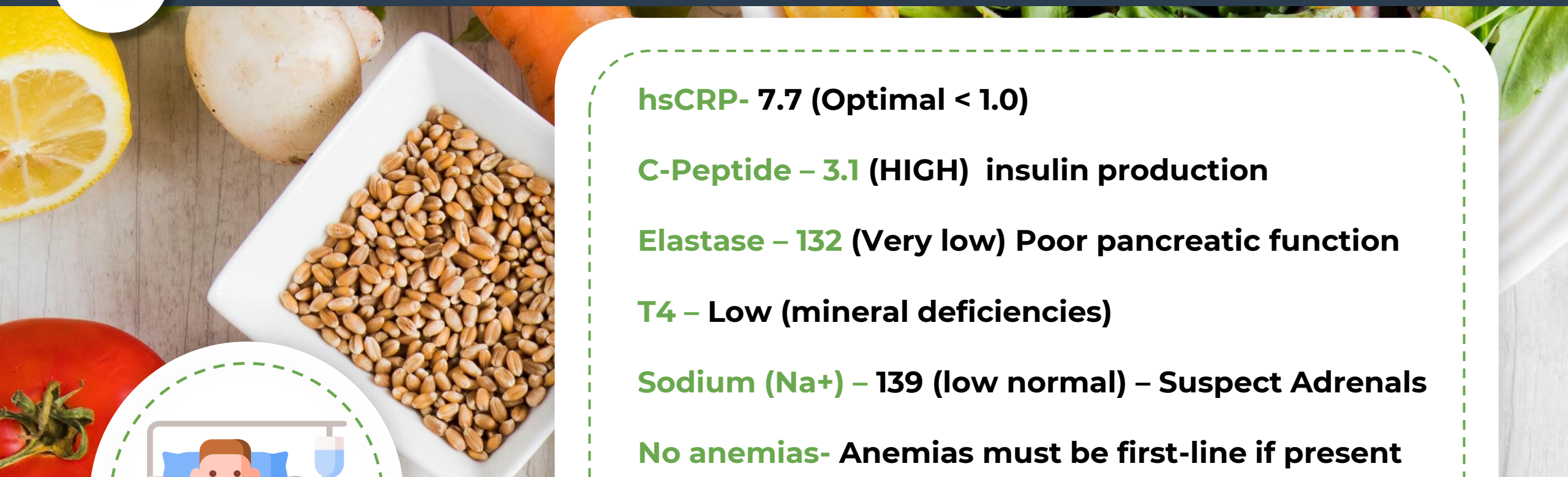


PREDISPOSING FACTORS

- Obesity 80lbs. Overweight (claims unable to lose)
- House flooded – Lived in home x 5 yrs after flood - never remediated
- Insulin resistance & NAFLD
- Dysbiosis/GERD/Environmental allergies
- Overall inflammation – aching
- Sleep apnea
- Migraines
- Covid-19 vaccinations
- Fragrance & chemical use
- Hx. Severe PMS/Stress



REVIEW OF CURRENT LABWORK



hsCRP- 7.7 (Optimal < 1.0)

C-Peptide – 3.1 (HIGH) insulin production

Elastase – 132 (Very low) Poor pancreatic function

T4 – Low (mineral deficiencies)

Sodium (Na+) – 139 (low normal) – Suspect Adrenals

No anemias- Anemias must be first-line if present

Cholesterol – Normal range

LDL fraction – Elevated small particles

Vitamin D – 55 (optimal 60-80)



INITIAL RECOMMENDATIONS



Diet Recommendations

- Mold Detox Diet
- Herbs & Spices
- 3 cups herbal teas daily (1 nettles)
- Licorice & Marshmallow teas for GERD
- 2 glass water upon awakening daily
- Fish 2-3 x weekly
- 5 servings vegetables daily
- Eat from the Rainbow



Lifestyle Recommendations

- One hour daily brain retraining exercises
- Castor oil packs
- Stop fragrance use
- No news or politics
- OTC antihistamines
- Inspect home for possible water intrusion



Test & Supplement Recommendations

Labs:

- Food sensitivity
- Organic Acids
- Conventional wellness

Supplements

- Gut protocol/Enzymes
- Electrolytes
- Adaptogens
- Quercetin/Nettles
- Antioxidants: A,D,E, NAC rosemary (unable to tolerate glutathione)



CDs UPDATE AFTER 7 WEEKS (1st Follow Up)

HOMEOSTASIS



INFLAMMATION

CASE STUDY - CD



Deficiencies

- Enzyme secretion
- Minerals
- Vegetables
- Polyphenols
- Electrolytes
- Imbalanced diet
- Eating allergenic and inflammatory foods

✓ Weight loss 12 lbs



Patient's Story

- Poor sleep
- Digestive issues
- Neuroinflammation
- Unable to lose weight
- Skin symptoms
- NAFLD/IR
- Mold exposure
- Unable to detox
- Many food sensitivities

✓ Mood improved – still difficulty with word finding



Recommendations

- **DIET & Lifestyle:**
- Mold Detox Diet
- Neuroplasticity work
- Stop fragrance use
- **SUPPLEMENTS**
- Trace minerals
- Minerals/Vitamins
- Enzymes
- Gut protocol
- Antioxidants

✓ Gas & bloating resolved



RESULTS

- Enzymes helped tremendously!
- Lost 6 inches in waist
- Lost 5 inches in hips
- Lost 12 lbs.
- Energy much improved
- GI – gas improved, BMs firmer and more regular
- Nausea resolved
- Sleep still bad

✓ Energy improved w/electrolytes

RESULTS over 7 weeks



TEST RESULT REVIEW 1st FOLLOW UP



Food Sensitivity Testing

- **C3d:**
- HIGH: coffee, sweet potato
- MODERATE: Egg, albumin, honeydew, kidney beans, mustard, white potato
- **IGE:**
- Honeydew, clam, walnut
- **IgG4:**
- HIGH: gluten, mustard
- MODERATE: mushrooms



Conventional Lab Testing

- **No anemias**
- **CBC diff** = pattern of activated immune system - current infection?
- **Glucose** = 106 = insulin resistance
- **Cholesterol** = 242
- **TSH** = 1.8 **T3** = 70 = low **T4** = 4.8 - borderline low
- **hsCRP** = 4.97 = high, but improved from last lab of 7.7
- **Uric acid** = 6.6 - too high - do you have joint pains or shooting pains in small bones? yes
- **Ferritin** = 61 = good



Organic Acids Lab Testing

- Candida
- B3, folate, biotin deficiency
- Magnesium deficiency
- Methyl donor depletion
- High stress pattern of neurotransmitters
- Glutathione depletion
- Lipid peroxidation
- Fatty acid imbalances
- **Let's take a deep dive into the markers!**



Insulin Resistance & need for niacin

BETA-HYDROXYBUTYRATE (2HB) – A KETONE BODY

Elevation can be due to inefficient utilization or mobilization of glucose (suspect vanadium and chromium deficiency) – use measures to improve insulin sensitivity.

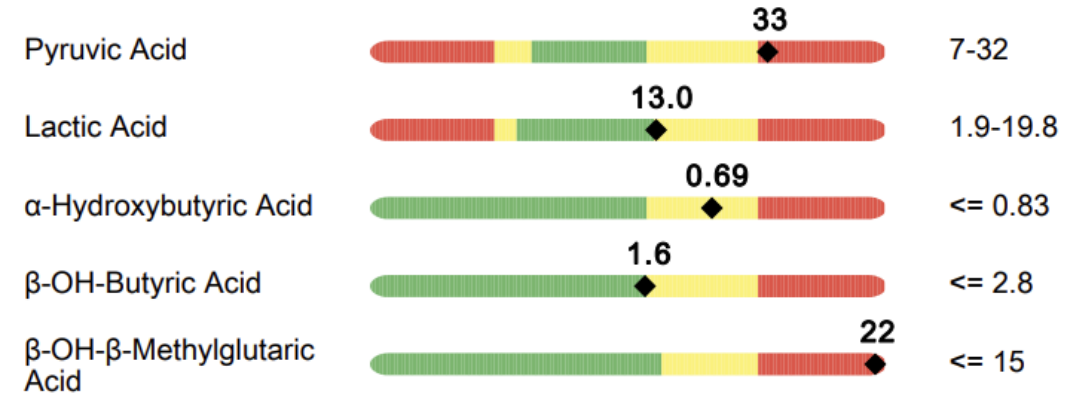
HIGH LACTATE & PYRUVATE

Think B5 & lipoic Acid

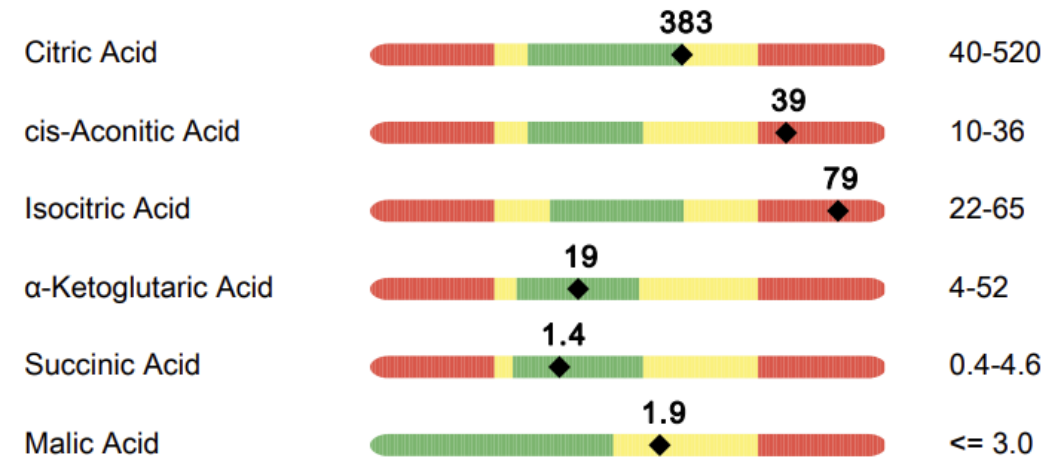
Elevation: Tricarboxylic Acids + Malic

Pattern of niacin deficiency

Carbohydrate Metabolism



Energy Metabolism





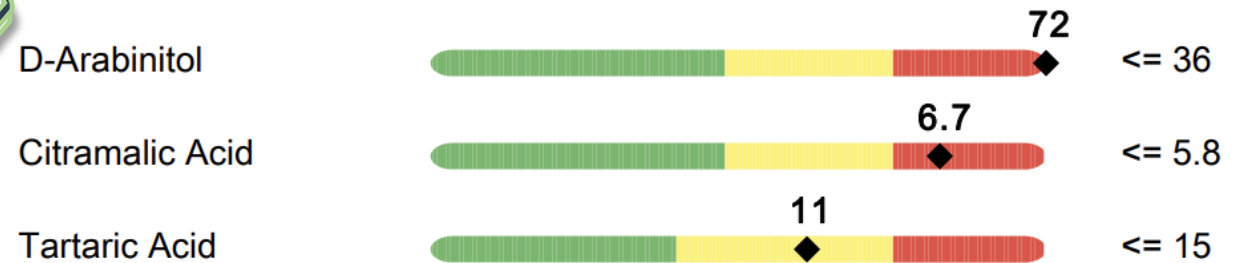
D-ARABINITOL & OTHER YEAST MARKERS

D-ARABINITOL – the only marker supported by scientific literature for Candida

- Metabolite of most pathogenic Candida species
- Distinguish between the sugar alcohol D-arabinose that is unrelated to any yeast or fungal conditions
- Tartrate, citramalate, and other compounds are **associated** with intestinal yeast growth, but no evidence supports that they are products of intestinal yeast overgrowth.
- There is a negative impact on absorption of vitamins B1, B2, and B6 & minerals mag + zinc plus ethanol production with intestinal dysbiosis caused by yeast.



Yeast / Fungal Dysbiosis Markers





Toxin & Detoxification Markers

Reference
Range



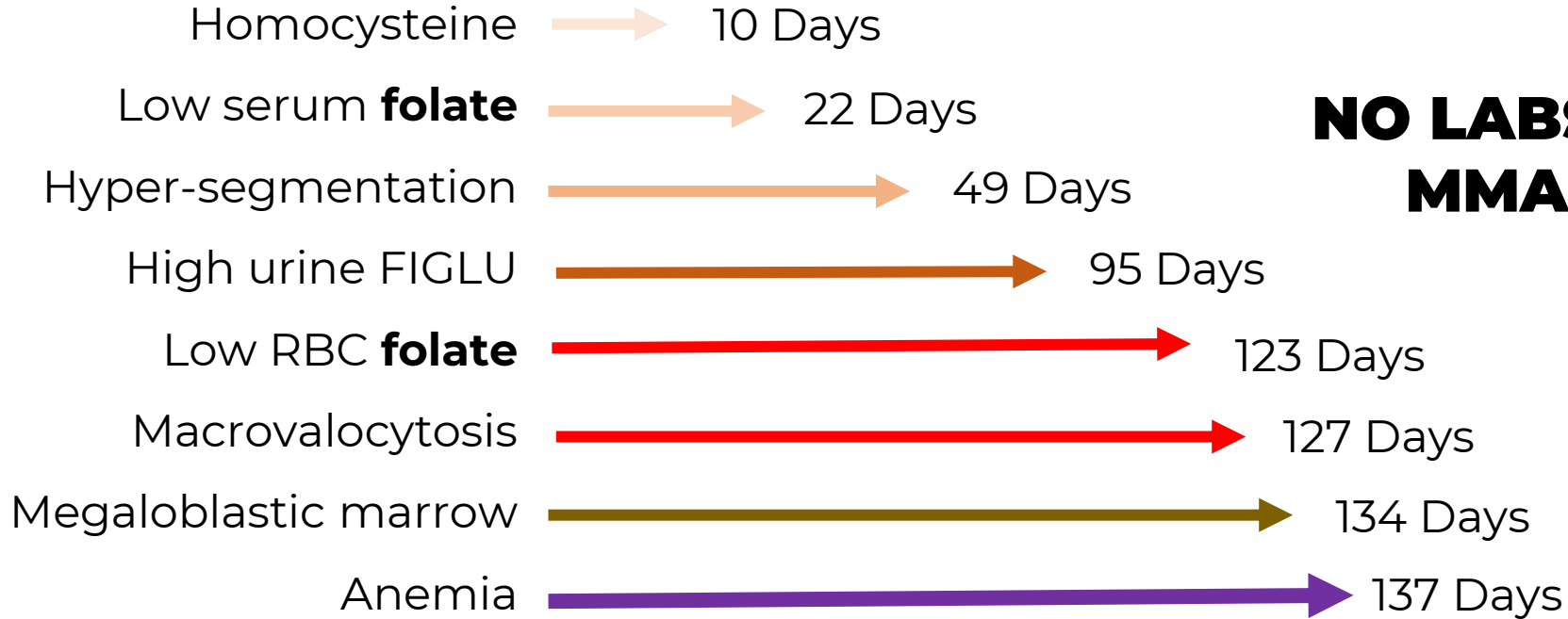
- Glutathione wasting in kidneys – unable to recycle (need for B5 & NADPH)
- High toxin load – reduce exposures (fragrances & chemicals)

NOTE: She is unable to tolerate glutathione – other options for supplementation; NAC; antioxidants; rosemary, polyphenols (topical glutathione can be an option for those unable to tolerate it orally).



FOLATE MARKER: C.D.

FIGLU appears after about 90 days of a deficiency of folate.



**NO LABS AVAILABLE FOR HCY
MMA IN NORMAL RANGE**

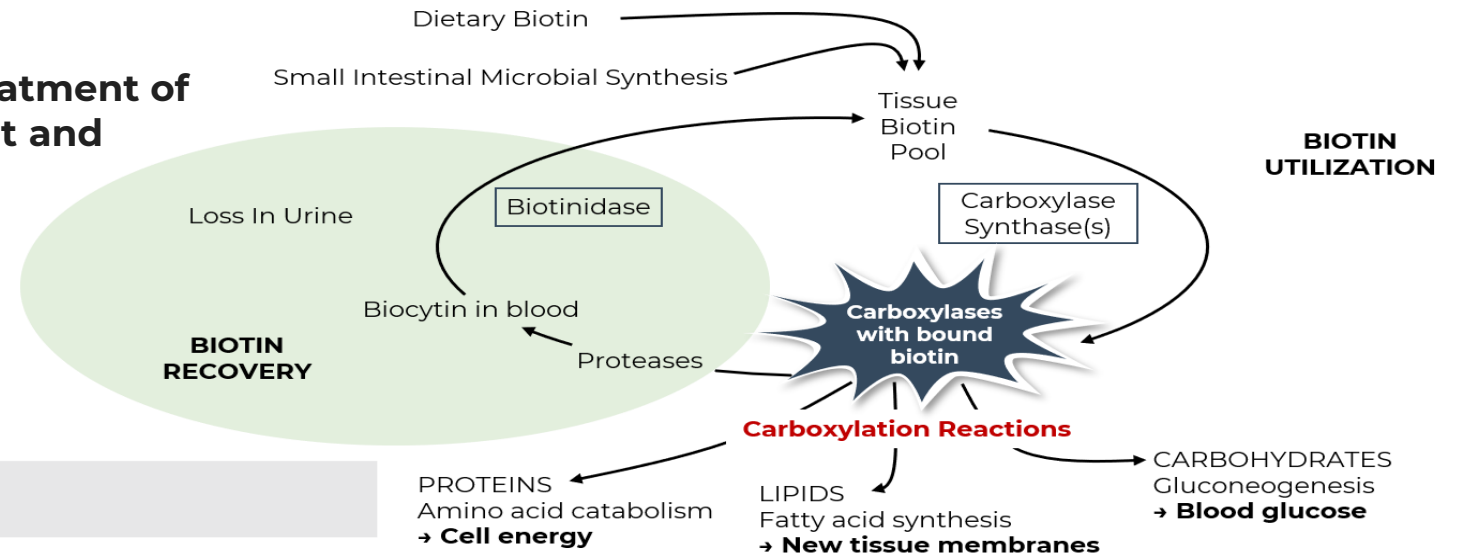
Methylation Markers (Folate, B12)		
Formiminoglutamic Acid (FIGlu)	1.2	<= 1.5
Methylmalonic Acid	1.0	<= 1.9
Sarcosine	1.9	<= 1.2



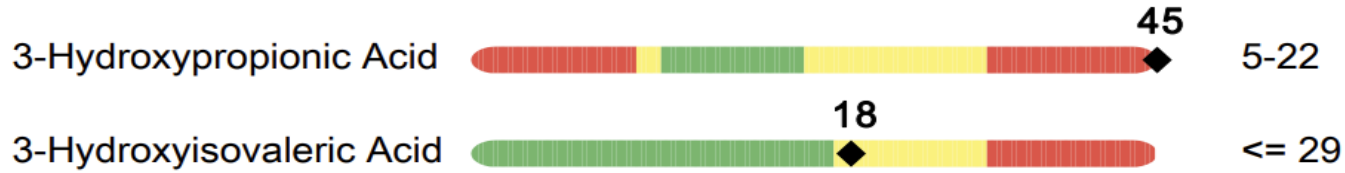
BIOTIN MARKERS

A Biomedical Approach Via Telemedicine in the Treatment of a Child With Sensory Processing Disorder Using Diet and High-dose Biotin Intervention: A Case Report

<https://pubmed.ncbi.nlm.nih.gov/31043911/>



Biotin Markers



Defects in Biotin Pathways

The activity of cellular carboxylase enzymes is determined by the total biotin pool size and the rates of formation and degradation. Cellular biotin is covalently bound to carboxylase enzymes by their respective carboxylase synthases. When they are degraded by proteases, the enzymes release biotin as biocytin that may be recovered when biotinidase is active. Thus, dietary, intestinal and genetic factors interact to determine individual biotin status. B-Hydroxyisovalerate is a substrate for one of the biotin-requiring enzymes in leucine catabolism.

The biotin marker, Beta-hydroxyisovaleric Acid is very high. This will affect the ability to synthesize the fatty acids involved mostly in hair, skin, and CNS. The individual will have difficulty in energy homeostasis, forming new cell membranes, and regulating cellular energy from amino acids. Refer to my case report of the little boy spinning in circles.



LOW KYNU/QUIN RATIO

Kynurenine Markers (Vitamin B6)		Reference Range
Kynurenic Acid	4.5	≤ 7.1
Quinolinic Acid	9.4	≤ 9.1
Kynurenic / Quinolinic Ratio	0.48	≥ 0.44
Xanthurenic Acid	0.52	≤ 0.96

CDs CASE THE RATIO = 0.48

- < 0.5 is neurotoxic and can cause neurodegeneration such as light and sound sensitivities and increased CNS symptoms
- Magnesium can block NMDA receptors and prevent excess stimulation (Mag⁺⁺ is a co-factor for QUIN)
- Low NAD⁺ production
- Up regulated KYNU pathway – May be due to dysbiosis or viral infections
- Quinolinic Acid (QA) is produced mainly in microglial cells. If QA high, it may be due to Mag⁺⁺ deficiency.
- Focus on things that can help improve the ratio: Diet, Mag⁺⁺, resveratrol, polyphenols, perfusion, oxygenation, blood sugar control, brain/limbic retraining, improving histamine metabolism; Drugs: ketotifen, Opioids can be helpful (LDN), medical marijuana (oral only, no smoking it)

NOTE: No B6 deficiency (Xanthurenic Acid = normal)



RECOMMENDATIONS based on OAT results



Diet Recommendations

- Continue Mold Detox Diet
- Start intermittent fasting
- Increase qty & variety of vegetables
- Increase water intake
- Remove the allergenic foods that showed up on test
- May start a food reintroduction
- Honey & onion protocol



Diet & Lifestyle Recommendations

- One hour daily brain retraining exercises
- Increase exercise



Test & Supplement Recommendations

- Supplements
 - Continue antioxidants
 - B vitamins
 - Biotin
 - Continue gut protocol
 - Continue quercetin & nettles
 - Change trace minerals to exclude Md
 - Increase enzymes



SECOND FOLLOW UP – after 8 weeks

REPEAT OAT TEST
SHOWED MANY MARKERS RESOLVED



UPDATE from 1st Follow up

- Down 25 lbs.
- Body is “shrinking”
- Added nightshades and tolerating well
- Gut – doing well
- Joints feeling better
- Magnesium is helping with sleep
- Not working on limbic brain retraining



Recommendations

- SPMs
- Candida protocol & 2 cloves garlic daily
- Add probiotics
- Increase Electrolytes
- Stress-reduction
- Include 150 minutes exercise per week



Maintain

- Food reintroduction – mustard, quinoa, flax went well – may continue to reintroduce (avoid grains for weight loss)
- Continue antioxidants
- Continue B vitamins, but decrease to every other day
- Continue enzymes
- Continue limbic training



Learn to Interpret Organic Acids like a Pro!



www.molddetoxdiet.com

***Mold Detox Diet**

***Advanced Mold immune**

***Organic Acids 10 video series**

www.drgailclayton.com

***To book a consult with me**