

Effective naturopathic approaches for the core causes of chronic illness

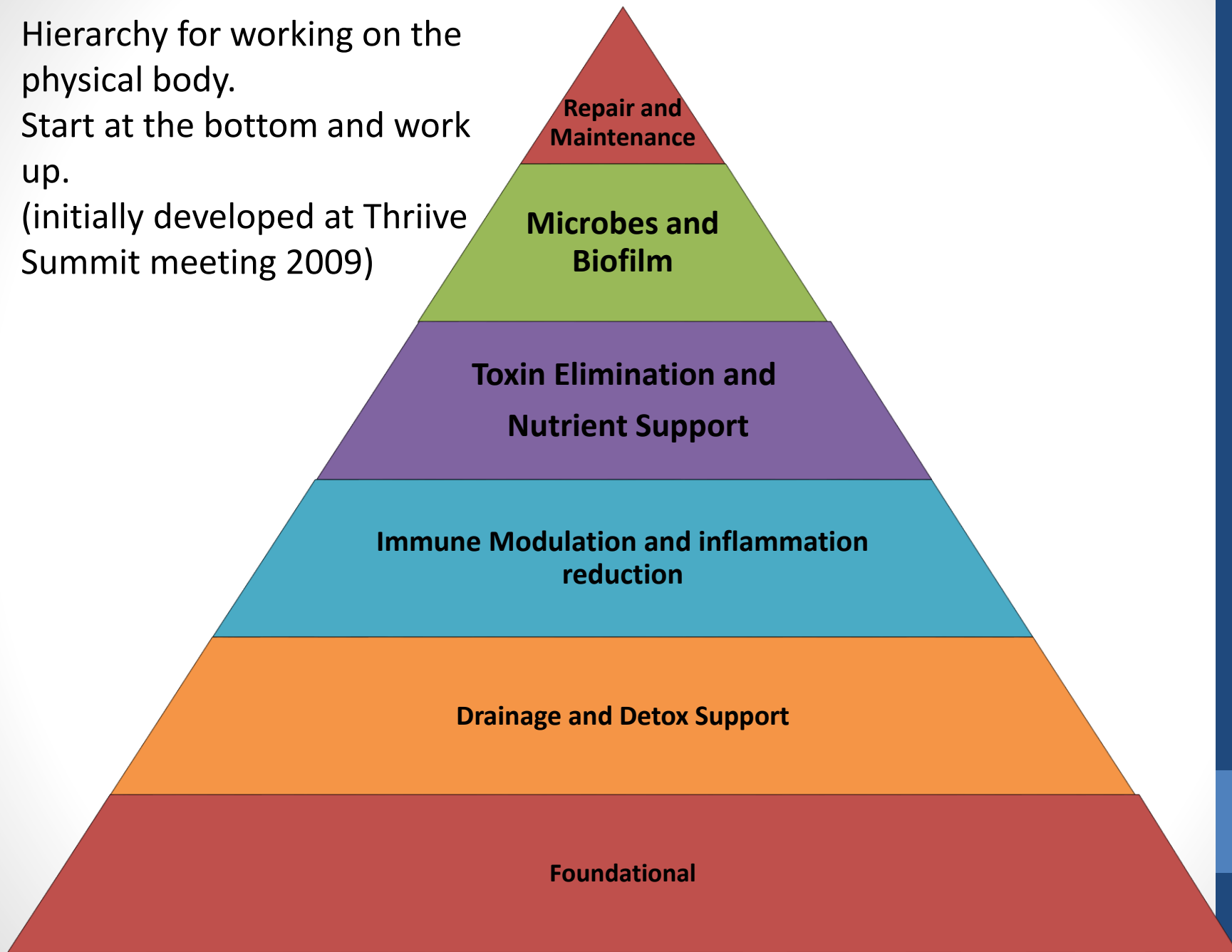
Amy Derksen, ND

www.holistichealingarts.org

Association for the Advancement of
Restorative Medicine
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Hierarchy for working on the physical body.
Start at the bottom and work up.
(initially developed at Thrive Summit meeting 2009)





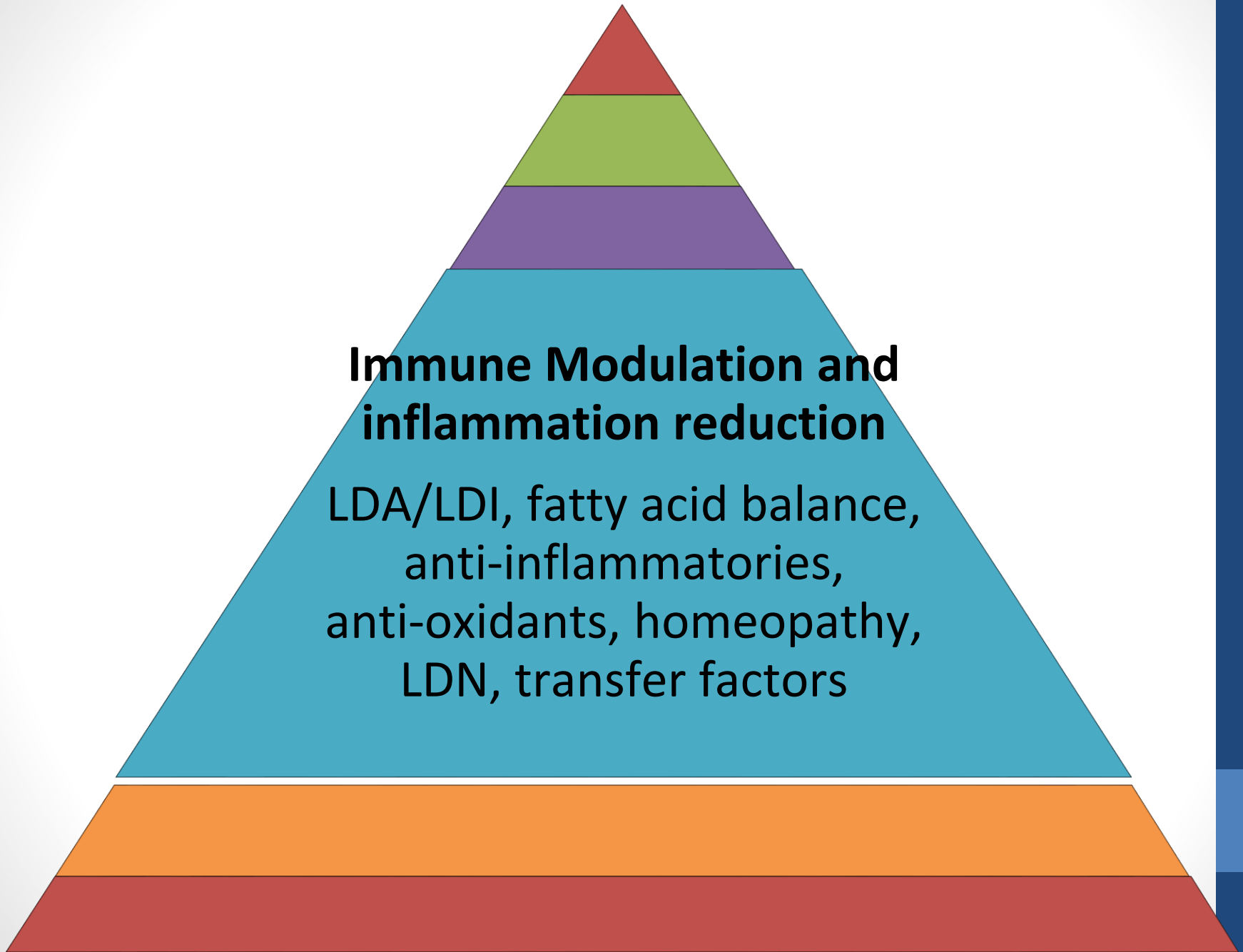


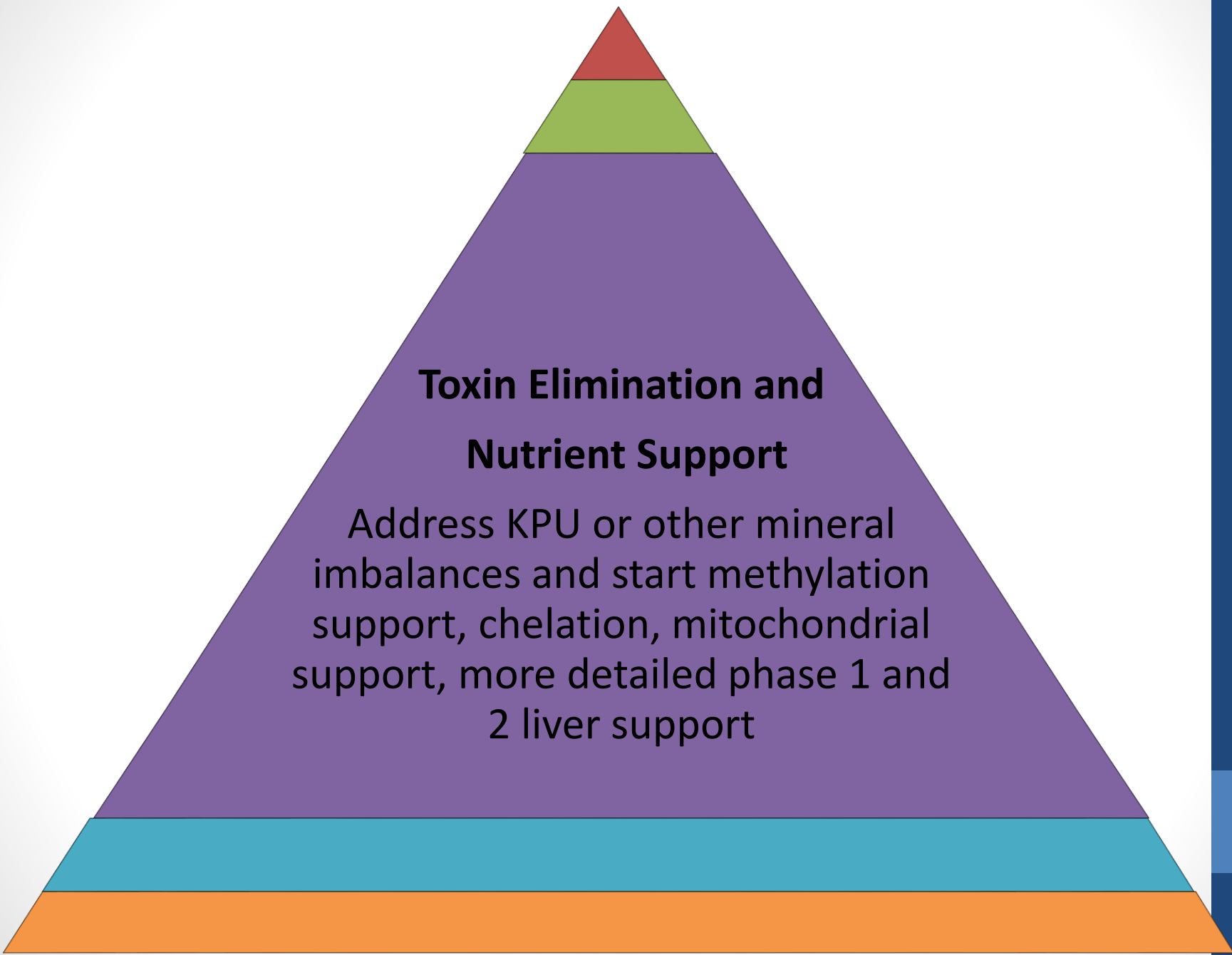
Drainage and Detox Support

Basic Nutrient, hormone and organ
support

Toxin Binders and Drainage Remedies to
help with symptom management

Ozone sauna, lymph drainage, skin
brushing, castor oil packs, colonics





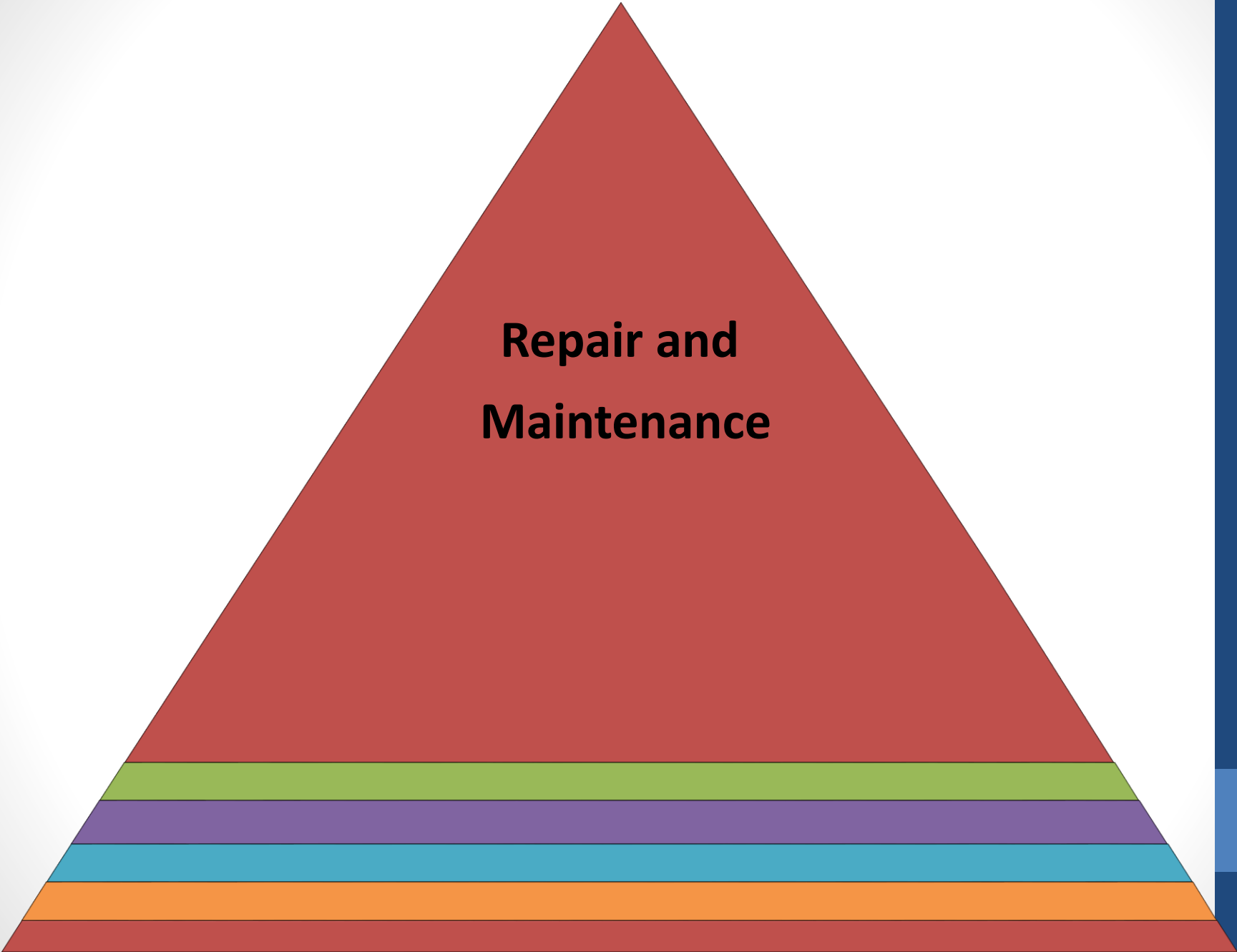
**Toxin Elimination and
Nutrient Support**

Address KPU or other mineral imbalances and start methylation support, chelation, mitochondrial support, more detailed phase 1 and 2 liver support



Microbes and Biofilm

Identify and treat the more
specific microbes and resistance
to treatment



**Repair and
Maintenance**

Foundational: Where to start???

- Clean up the diet (SCD, low carb, whole foods)
- Reducing stress levels at home
- Reducing toxic exposures
- Getting a baseline nutritional protocol going- oils high in DHA, vit D, minerals, probiotics
- Make sure there is adequate fluid intake
- Address amalgams
- Assess the safety of the home (molds)

Thriiive.com Top 10 List

- 1- **Life**- Add pleasure, subtract stress
- 2- **Energy**- add sunshine and nature, subtract EMF's at night
- 3- **Water**- add purity and structure, subtract DBP's and fluoride
- 4- **Food**- go organic and choose real food
- 5- **Exercise**- get moving
- 6- **Tests**- more intention testing than stressful labs
- 7- **Emotions**- Subtract negative speak
- 8- **Body**- subtract focal lesions
- 9- **Supplements**- Add minerals, Subtract multi-vitamins and do calcium only around growth spurts
- 10- **Detox**- Add clean air, subtract shoes inside...



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help with symptom management

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brushing, castor oil packs, colonics

Support the organs of elimination

- Before doing any anti-microbial or metal treatments, you absolutely have to **support the detox organs**:
 - Kidneys
 - Liver
 - gut
 - skin/lymph
- Never do more killing or metal mobilizing than what the body can eliminate!

Supporting the Kidneys

This organ is an absolute must to support if you are chelating metals!!!

- **Water/hydration**
- **Homeopathic Drainage blends**
- **Neural therapy or acupuncture**
- **Electrolytes** added to all fluids
- Tapping on K27 whenever taking supplements
- **Cilantro** rubbed **topically** over the kidneys (metals)
- Ion Cleanse **foot baths**

Liver Support

(Suspect this with sluggish bowels and in general overly sensitive to any treatments)

- **Homeopathic drainage blends**
- **Milk thistle**
- **Castor oil packs** over the liver with heat for up to 50 min daily
- **NAC**
- **Phosphatidyl Choline** (oral or IV)
- **Glutathione** (start slow and dose infrequently if sensitive)
- **Taurine**
- **Bile salts**
- **Dandelion Root**
- **Burdock**
- **Coffee enemas**

Toxin Binders

keep these ideally 1 hour from meds

- **Chlorella**- bigger doses are more binding. Typically 1000mg or more per 50 lbs body weight
- **Chia seeds**- 1 Tbls soaked in water for 30-60 min daily
- **Acacia Fiber**- has almost no taste or texture
- **Bentonite liquid**- 1 Tbls in large glass of water up to 2x/day
- **Charcoal**- this is the #1 suggestion when people call the office in crisis. If it constipates, chase it 30 min later with magnesium citrate
- **Zeolite Powders**- 1 tsp twice daily
- **Apple or Citrus Pectin**- twice daily dosing
- **Chelators**- things like DMSA, EDTA, DMPS or IMD are very useful especially when the person has a high metal load

Herx Support (die off management)

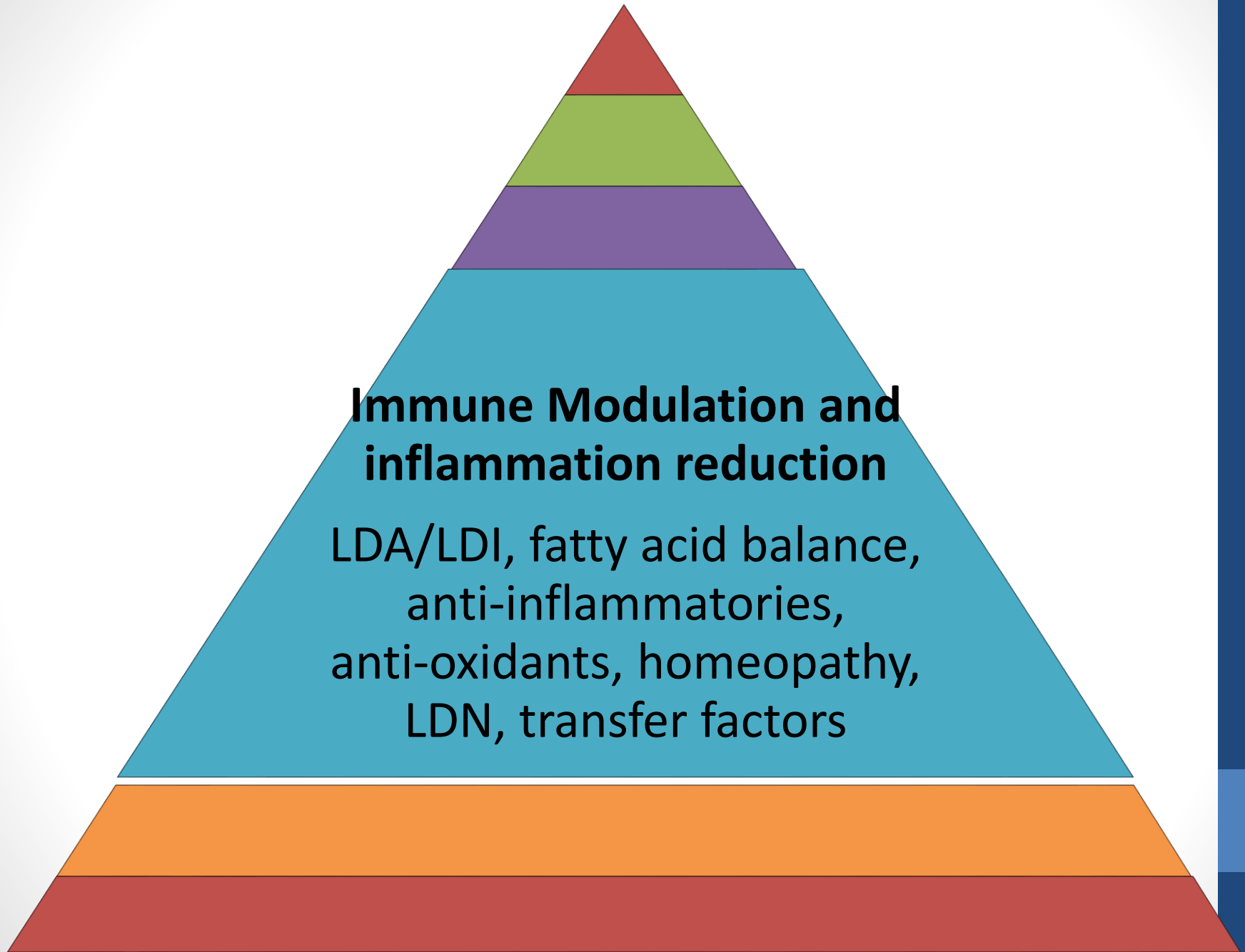
- **Epsom salt baths**- 2 cups in the tub or 1 cup in a leg soak. Good source of magnesium.
- **Baking soda baths** with up to 8 cups
- **Vit C** in frequent doses- with each meal and at bedtime, natural anti-histamine
- **Anti-inflammatories or anti-histamines**
- **Glutathione IV or large oral liposomal doses**
- **Homeopathic drainage**: Pekana detox and drainage kit, Heel Detox Kit, Viatrexx, Unda...

Address Constipation

- **vit C** in frequent doses
- Get enough **water**
- **magnesium citrate or oxide**
- **Aloe** gel or capsules (good if inflamed)
- **Address dysbiosis**
- **castor oil packs** over abdomen
- **Colonics** or **enemas**
- High doses of **probiotics** or **saccharomyces**
- **Rule out food allergies** (especially dairy)
- Digestive **enzymes**

Detox Therapies My Patients Love

- Ozone sauna to move water soluble toxins
- Ionic foot baths- typically 2 days on, 1 day off
- lymph drainage
- Dry skin brushing
- castor oil packs
- Colonics
- Coffee enemas
- Neural therapy
- Far IR Sauna eventually



Boosting the immune system

- **Vit D**- doses up to 20,000IU daily may be needed in climates like Seattle. Per Dr Mercola's latest research typical dose needed is 35 IU/lb and I find serum level goal is 60-80 for best effect. Average adult needs are around 8000IU daily and kids 50IU/lb (good idea to lab test regularly to get a good sense of proper dose)- balance this with at least 1mg of K2 for best tolerance and effect. Daily lower doses are found to be more beneficial in some cancer studies than single large doses for long-term health.

Bruce W. Hollis, PhD, Medical University of South Carolina shares the results of a recent trial including identifying the vitamin D level needed to protect the prostate gland. Series: "Vitamin D for Public Health - Integrating Sunshine, Supplements and Measurement for Optimal Health 2014" [Health and Medicine]

Transfer Factors

- Transfer Factor products can be produced to help **promote healthy natural killer cells, macrophage, T-cells, and cell division**
- Transfer Factors work on the cellular (TH1) immunity level and they are often used to **promote a balanced immune system (Th1/Th2)**. This results in overall less inflammation and symptoms and more immune system resilience.
- Different formulations **can be made to target specific organisms** like Lyme, EBV, Strep, Mycoplasma, Bartonella....
- We have found them particularly **helpful for patients trying to get off antibiotics** or who are having mild symptoms and want to avoid antibiotics in the first place

Boosting the immune system

- **High dose vit A-** 100,000 IU daily for 7 days or up to 400,000IU daily for 2 days repeated no more than once a month
 - BIG anti-viral boost!!!!
- * Be CAREFUL, since prolonged dosing like this is toxic to the liver....

*“Children with Starving Brains: A Medical Treatment Guide for Autism Spectrum Disorder”
By Jaquelyn McCandless, MD*

Boosting the immune system

- **Mushroom extracts**-more exotic mushrooms tend to be better. All appear to help boost NK cell activity.
- Mushrooms contain beta glucans, arabinogalactans, ergosterols, cordycepic acid, galactose and many other ingredients to support natural immunity
- Different species have different benefits
- Combination products offer comprehensive immune support
- Individual ingredients are often more for fatigue, inflammation control, cancer or viral flares.
- They help make patients overall more resilient and less likely to rebound after new exposures or stressors

<http://www.fungi.com/mushroom-info.html>

Natural anti-inflammatories

- **Curcumin (ideally liposomal)**
- **Quercetin**
- white willow bark
- **Omega 3's**- especially cod liver, fish or salmon oil (doses of 3-4 gm or more)
- **Boswellia**
- High dose **anti-oxidants** (especially vit E and C)
- **Baking soda** helps neutralize histamine- 1 tsp twice daily in 6-8 oz of water between meals

Herbal Complement Inhibitors in the Treatment of Neuroinflammation. Ann. N.Y. Acad. Sci. 1056; 413-429 (2005)

Natural anti-inflammatories

- **Address gut inflammation**
 - stool labs can show inflammatory indicators or urine OAT (organic acid test) shows elevated quinolinic acid
 - Brain inflammation and excessive excitatory neurotransmitters often are triggered by the digestive tract
 - Never forget to address the gut!

Gastrointestinal Immune System and Brain Dialogue Implicated in Neuroinflammatory and Neurodegenerative Diseases. *Curr Mol. Med.* 2011 Nov;11(8) 696-707.

Natural anti-inflammatories

- **Melatonin**

- high doses are found to be neuroprotective
- Protective against damage from methyl mercury
- Clinically shown to calm many neurological symptoms
- Look for liposomal products for better effect
- Doses may go up to 60mg each night

Neuroprotection by Melatonin on Mercury Induced Toxicity in Rat Brain. Pharmacology and Pharmacy, 2011, 2, 375-385.

Prescriptions to consider:

- **Ketotifen**- gut anti-histamine that can help reduce reactivity, reduces the histamine trigger of epinephrine and other neuro-excitotoxins, and generally helps to calm things down. Used for 6-12 months to help heal leaky gut. Start with 1mg at bedtime and slowly work up to a max of 2mg QID before meals and at bedtime.
- **LDN Low Dose Naltrexone**- www.lowdosenaltrexone.org - www.LDNScience.org - In low doses of 4.5 mg or less this acts as an immune modulator to reduce auto-immunity and inflammation, help energy and boost immune function like natural killer cells. For sensitive individuals or known auto-immunity, start with 1.5 mg each night at bedtime and increase by 1.5mg increments monthly up to 4.5 mg. Some patients are needing as much as 12 or 25mg for effect.

LDA/LDI

- **LDA is low dose antigen therapy** used to calm and stabilize the immune system in response to allergic and auto-immune reactions triggered by foods, environmental inhalants and chemicals.
 - Re-trains the T-reg lymphocytes to promote immune tolerance
 - Repeated as injections or sublingual drops every 7-8 weeks
- **LDI is a similar low dose immunotherapy** used in a similar way to **promote immune tolerance** and a healthier overall response to organisms like Lyme, Bartonella, Babesia, Viruses, gut pathogens, parasites and even your own body secretions.
- **My clinic finds this a very helpful tool to reduce the overall body burden!!!**
- More information available on these therapies at:
 - LDA: www.aaemonline.org
(American Academy of Environmental Medicine)
 - LDI: <http://www.mat-suim.com> (Dr Ty Vincent)

Don't forget about the adrenals

ASI saliva testing is very useful

My favorite treatments are:

- Eleutherococcus
- Ashwaganda
- Rhodiola
- Licorice
- Phosphatidyl serine (especially for insomnia or elevated cortisol)
- DHEA (adults only and dose low)
- Pregnenolone
- B vitamins
- Adrenal Cortex Extracts and Glandulars (avoid the medulla where all the epinephrine is)



**Toxin Elimination and
Nutrient Support**

Address mineral imbalances and
start methylation support,
chelation, mitochondrial support,
more detailed phase 1 and 2 liver
support

Mitochondrial Roles and Concerns (the gas that runs the car)

- Newest research is showing chronic illness and toxicity can trigger mitochondrial dysfunction
- Can present at any age
- Many patients have dysfunction not at the full level of disease
- Many neuro and psych disorders are associated
- Turn genes on/off
- Process chemicals and xenobiotics
- Build neurotransmitters
- Metabolize neurotransmitters
- Process hormones
- Build immune cells
- DNA and histone synthesis
- Produce energy (ATP)
- Protective coating on nerves
- Build and maintain cell membranes

Clinical signs of needing mitochondrial support

- Fatigue
- Growth delays
- Lacking stamina
- Crashing after adding methylation support (makes them tired)
- More adrenal stress
- Immune dysfunction
- Poor exercise recovery
- Loss of muscle mass
- EXHAUSTION

“Metabolic Features of the Cell Danger Response” Mitochondrion (2013)
<http://dx.doi.org/10.1016/j.mito.2013.08.006>, Robert Naviaux MD, PhD

Commonly Affected Systems in Mitochondrial Disorders

Nervous system

Seizures, tremors, developmental delays, deafness, dementia, stroke before age 40, poor balance, problems with peripheral nerves

Heart

Cardiomyopathy (heart failure, conduction block)

Liver

Liver failure uncommon except in babies with mitochondrial DNA depletion

Kidneys

Fanconi syndrome (loss of essential metabolites in urine)

Eyes

Drooping eyelids (ptosis), inability to move eyes from side to side (external ophthalmoplegia), blindness (retinitis pigmentosa)

Skeletal Muscle

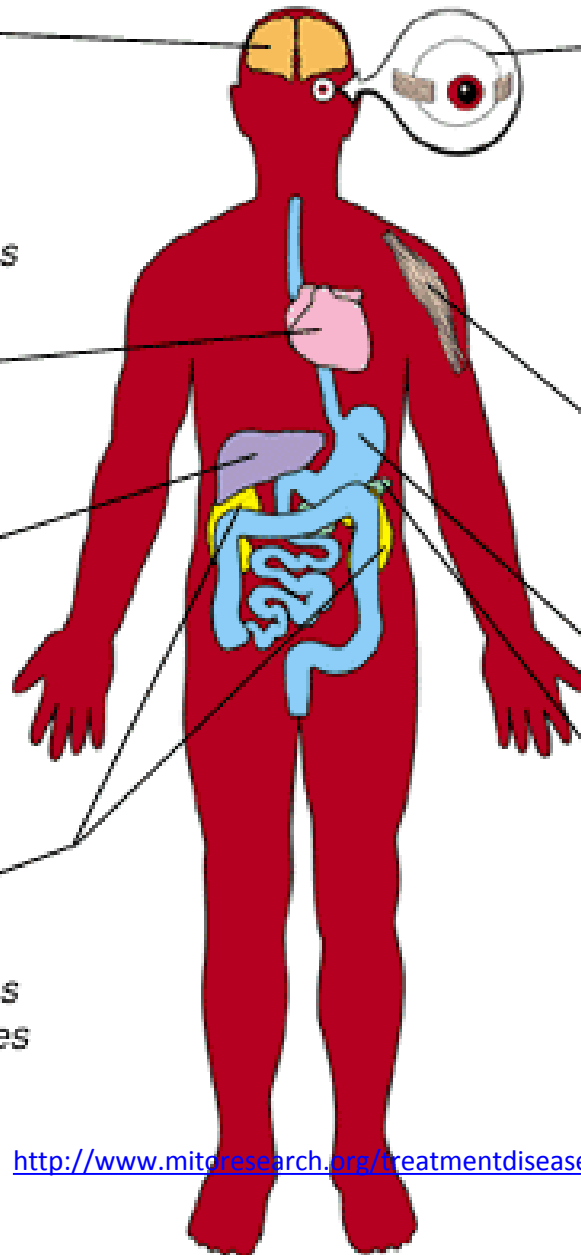
Muscle weakness, exercise intolerance, cramps

Digestive tract

Acid reflux, vomiting, chronic diarrhea, intestinal obstruction

Pancreas

Diabetes



<http://www.mitoresearch.org/treatmentdisease.html>

Lab indicators of Mito Dysfunction

- Low B12 and RBC folate
- Low BUN/CRT
- Low reduced glutathione
- Low cysteine
- Isolated elevation of AST or ALT
- Low glucose
- Labcorp or Quest done fasting or OAT shows increased lactic acid
- Pyruvate being high
- Succinate being very low
- Carnitine free and total (levels will be low)
- Creatine kinase high
- Ammonia high
- Blood CoQ10 low

Mitochondrial treatments

(per MAPS suggestions)

- **CoQ10** 5-10-15mg/kg/day or more
- **Carnitine** 50-100mg/kg...up to 5000mg daily (note: high doses can cause a fishy smell)- prescription Carnitor is typically the best. Acetyl L-carnitine as a supplement has more effect on the nervous system
- **Exercise- this is the only thing that increases the number of mitochondria!!!**
- **Folinic or 5-MTHF 1-10mg/day**
- Creatine monohydrate 5-10g/day
- B12, selenium, succinate, ginkgo
- D ribose 0.5-1gm/kg
- Glutathione
- Antioxidants
- B vitamins- esp thiamine and riboflavin
- Milk free diet
- **Nice combination products are available!**

Mitochondrial Dysfunction

- Newer article first to be accepted of this concept of mitochondrial dysfunction vs. disease which lays out an algorithm of how to work up mitochondrial concerns and what labs to run and triggers to rule out

Mitochondrial Dysfunction and Autism Spectrum Disorders: A Simplified Approach. Autism Science Digest, Rossignol and Frye, 2011.

Starting labs I find most helpful

- Basic labs: CBC with diff, chem panel, homocysteine, vit D, ferritin, thyroid, RBC zinc and magnesium
- Stool testing
- Urine organic acid testing (OAT)
- Metal testing (provoked urine)

What you can learn from a CBC

- high WBC's- points toward an acute response or inflammation
- Low WBC's chronic point toward KPU concerns (upper 2's, low 3's)- think needs for zinc and B6
- Eosinophils- elevation points to allergies and/or parasites
- Monocytes- elevation points to chronic immune activation and possibly parasites
- Lymphocytes- elevation points toward viral infections
- Neutrophils- elevation points toward bacterial concerns
- MCV (size of RBC's)- if they are large in size then you suspect low B12 or folate. If they are small in size you suspect low iron and/or copper.

What you can learn from a chem panel:

- Low alkaline phos under 50- big sign of zinc deficiency
- ALT and AST show signs of liver stress (is your patient tolerating meds ok?)
- Albumin and protein are good indicators of protein absorption (especially if low, thinking malabsorption)
- Low normal CRT is common in kids on the spectrum and adults who are more metal and chemically sensitive- could be an indicator of mitochondrial needs or concerns with how well they can clear metals/chemicals

What you learn from an OAT test:

- B vitamin and folate needs
- Glutathione status
- Bacterial/yeast/clostridia overgrowth
- Neurotransmitter balance (dopamine, serotonin)
- Quinolinic acid elevation is a marker of brain inflammation
- Mitochondrial needs
- Oxalate concerns
- Ammonia concerns (orotic acid)

What you learn from a stool test:

- Fat absorption/malabsorption
- Digestion of proteins and foods
- Bacterial balance
- Butyrate levels
- Propensity toward strep overgrowth
- Amounts of probiotics thriving or not
- Markers of inflammation
- Yeast growth
- If abnormal bacteria or yeast are found, sensitivity testing is done to see what treatments could be effective
- Parasites are screened for, but are difficult to find

For parasites:

- Metematrix uses a DNA probe in GI Effects test
- Diagnostechs uses IgA responses to identify parasites the immune system is responding to

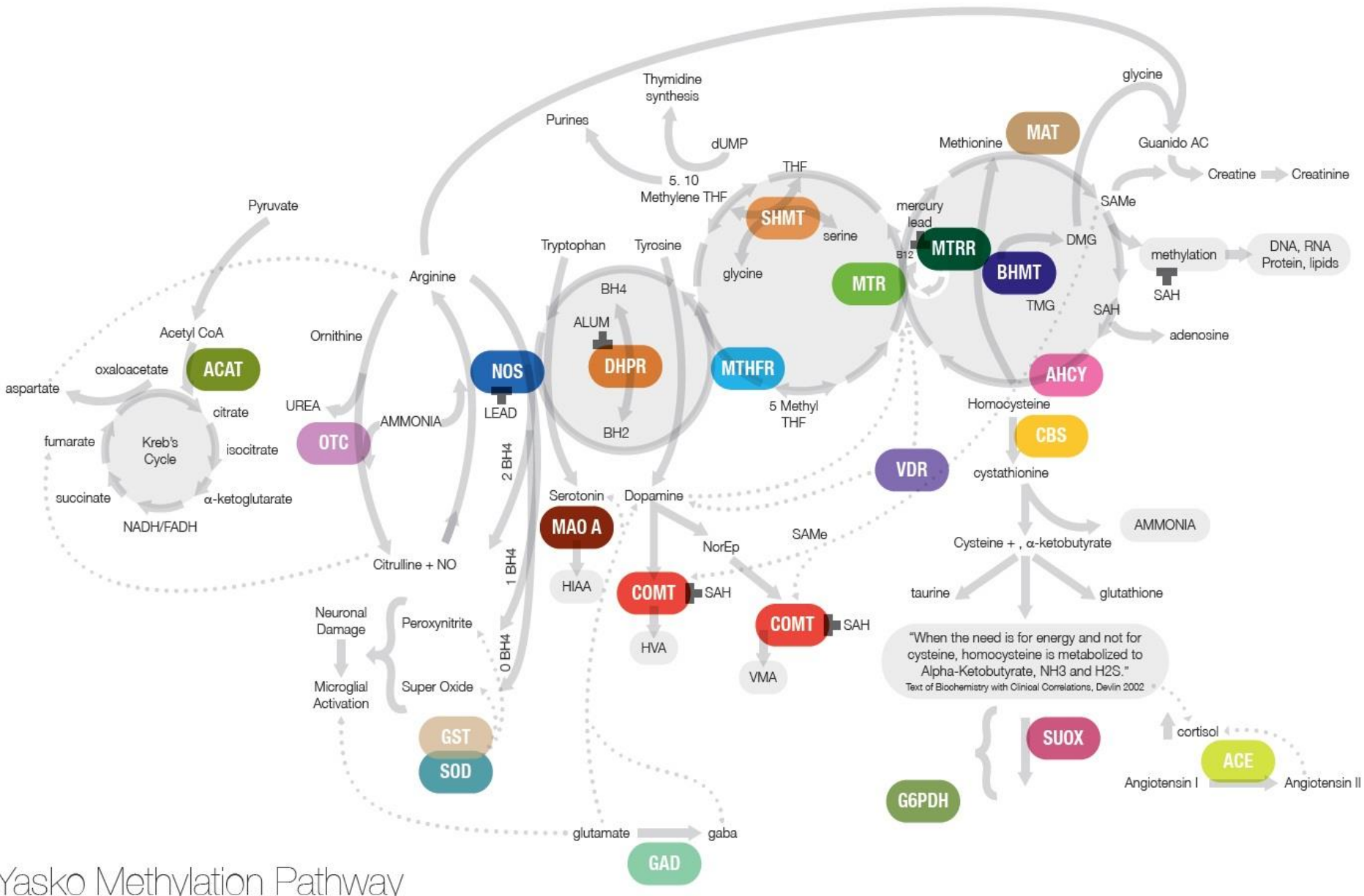
Addressing Methylation Defects- Main protocol

- **Folic Acid (folates)- Treatments going up to 1-2mg/kg BW**
 - **5-MTHF**- reduced form of folate that crosses the BBB and concentrated 2-4 times higher, binds to a folate receptor in the choroid plexus and then is delivered to CSF (ATP dependent)
 - **Folinic**- can also cross the BBB (most current research using this form)
- **B12**
 - **Methyl B12**- acts as a methyl donor and has been the form most used over the last few years. Best clinical response has been with nasal or injections. Sublingual next best option.
 - **Hydroxy B12**- this is becoming more available and seems to complement the higher doses of 5-MTHF better
 - **Adenosyl B12**- available as lozenges and compounded injections. Good for more sensitive patients with mitochondrial needs.

Addressing Methylation Defects- Secondary Support

- B6 as pyridoxine or P5P (can be added to injections)
- SamE
- Taurine (has a very calming effect)
- Glycine
- KPU support (www.klinghardtacademy.com)- zinc, B6, biotin, EPO
- Pantothenic Acid
- Betaine HCL or TMG
- Niacin

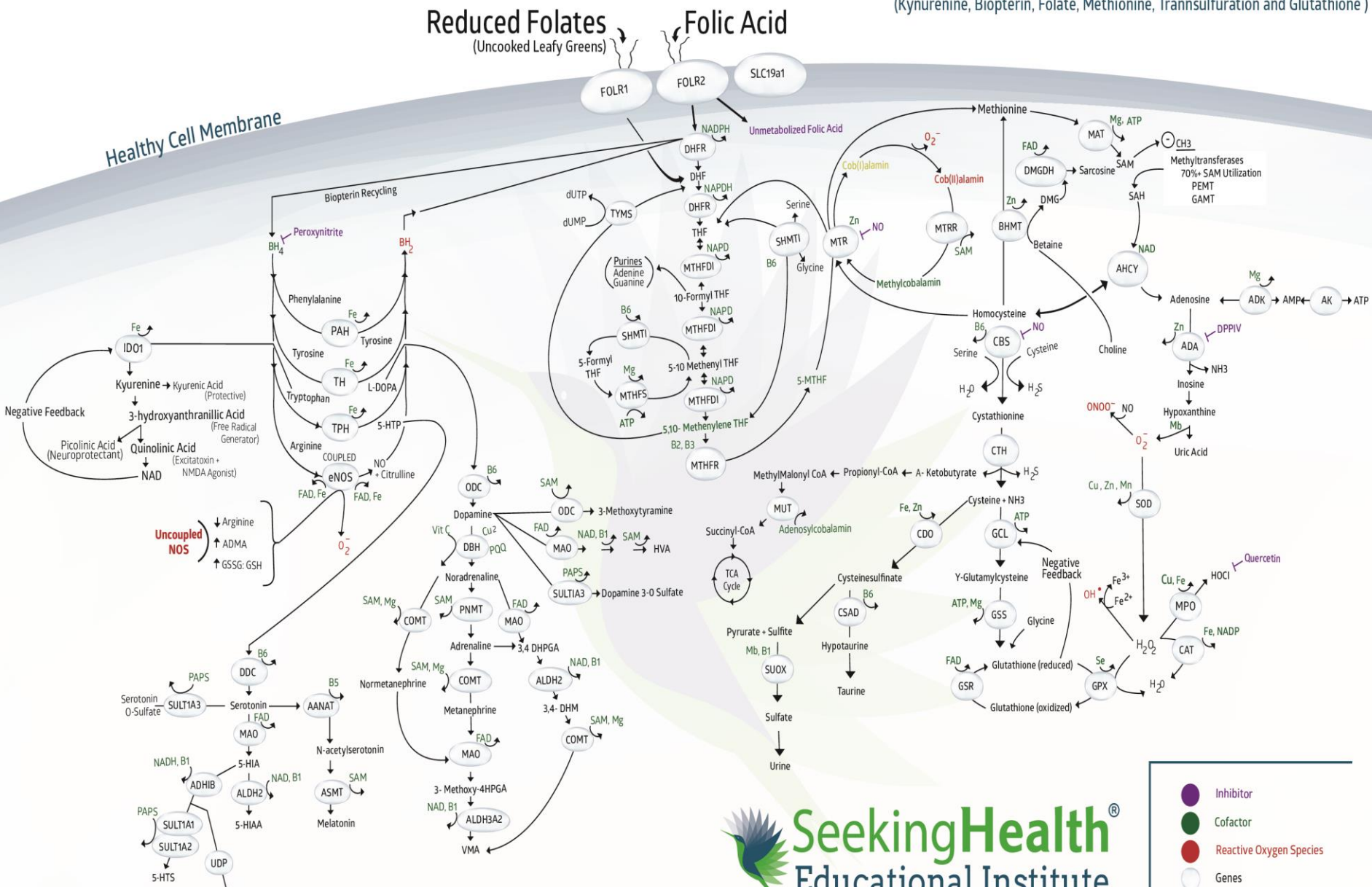
Note: when you get methylation working, patients may start to dump toxins. Binders and support of elimination is useful.



Yasko Methylation Pathway

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(Kynurenine, Biotpterin, Folate, Methionine, Transsulfuration and Glutathione)



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- Inhibitor
- Cofactor
- Reactive Oxygen Species
- Genes

Lab markers of B12 deficiency

- Elevated serum MMA (methylmalonic acid)
- Elevated plasma homocysteine (normal 6-7)
- Macrocytosis or macrocytic anemia (MCV over 98)
- Elevated neutrophil hypersegmentation (seen on CBC and hypersegmentation run at Meridian Valley)
- Good article on folic acid and neutrophil hypersegmentation

<http://tahomaclinicblog.com/folic-acid/>

Methyl B12

- Injections of this subcutaneous up to daily has been amazing for many kids and adults even in the absence of abnormal labs
- I have seen language and focus gains consistently and energy improvements
- Watch for a big dump of metals
- Patients often are stimulated with the first 2 injections and then this typically calms down
- If it doesn't, or if it aggravates them, switch to hydroxy B12
- See www.drneubrand.com for more info

Methyl B12

Helpful for:

Energy

Detox support

Nerve repair

DNA repair

Immune function

- [Exp Neurol.](#) 2010 Apr;222(2):191-203. doi: 10.1016/j.expneurol.2009.12.017. Epub 2010 Jan 4.
- **Methylcobalamin increases Erk1/2 and Akt activities through the methylation cycle and promotes nerve regeneration in a rat sciatic nerve injury model.**
- [Okada K¹](#), [Tanaka H](#), [Temporin K](#), [Okamoto M](#), [Kuroda Y](#), [Moritomo H](#), [Murase T](#), [Yoshikawa H](#).

Hydroxy B12

- We are finding this to be the best tolerated form of B12 once you push 5-MTHF doses or in patients with a high microbial load (likely because it reduces NO which can be elevated in chronic illnesses)
- Injectable forms:
 - compounded in a 10mg/mL strength preservative free
 - often giving 5mg in conjunction with 5-MTHF shots
- Oral forms:
 - Sublinguals- **1-2mg** per tab

Basic methylation labs

- **MTHFR gene testing** – see next slide
- **Health Diagnostics Lab offers a full methylation panel** test (looking at folates, glutathione, NO, SAM, SAH)- very useful to see how genes are expressing
- CBC shows **chronic elevated MCV** not responsive to B12 (or someone who tends to have red urine after a B12 shot)
- **Doctors Data Methylation Panel and Oxidative Stress Panel**
- **Methylmalonic acid** as best measure of B12 (elevation indicates deficiency)

Basic methylation labs

- **RBC and serum folate** levels (not that helpful, since not differentiating folic from folates)
- **Serum B12**- rarely low, but if it is the patient is in serious need
- Meridian Valley lab **neutrophil hypersegmentation %** -the lower the better. Higher percentages indicate there are more 5 lobed immature neutrophils in the blood that don't seem to have enough folate to mature properly. (good article by Dr Jonathan Wright June 2010 Nutrition and Healing)
- **Do NOT worry about high B12 or folate in the serum** (this may just be reflective of poor transport into the cell)- think pancreatic insufficiency, lack of intrinsic factor, bacterial intestinal overgrowth

MTHFR testing options...

- Often not covered by insurance unless documented elevated homocysteine
- SpectraCell Labs offers a \$35 copay
- Any Lab Now offers a cheek swab
- 23andme includes this along with an array of other detox genes
- Doctors Data offers a nice DNA Methylation Pathway test
- Amy Yasko offers a Nutrigenomic profile that comes with a long interpretive report

Results:

C677T +/- = 40% loss of gene function

C677T +/+ = 75% loss of gene function

A1298C +/- = 25% loss of gene function

A1298C +/+ = 40% loss of gene function

(www.mthfrsupport.com and references of Dr Ben Lynch)

Getting your methylation info from 23andme.com

- www.23andme.com Go here first and order your kit.

Then run the data through one of these online programs to get a useful report:

- www.mthfrsupport.com

This tool will allow you to upload your 23andMe raw data and create an easy to read report for use in identifying single nucleotide polymorphisms (SNPs) that may impact your health for \$20

- www.geneticgenie.org

This is another database in which you upload your 23andme raw data and it gives you useful reports in regards to methylation and detox. The charge for this is an optional donation through the site.

www.livewello.com is another option, amongst others

www.knowyourgenetics.com is access to Amy Yasko's report on the 23andme data

Rescue for Over-methylating

Symptoms: headache, aggression, anxiety, feeling terrible if taking too much L-5-MTHF or mB12

Rescue for over-methylating:

- **Niacin**- 50mg up to every 30 min until reactions stop
- **Potassium** (I am finding it has to be a potassium pill 100mg 2-3 times daily and not just what is in electrolytes)
- **Hydroxy B12** can also help by reducing NO

COMT concerns/high dopamine:

- primarily responsible for breaking down the neurotransmitters dopamine, epinephrine, and norepinephrine
- Watch that yeast and clostridia both contribute to dopamine elevation
- This pathway is very sensitive to cortisol and stress
- Use caution in these patients with quercetin (can slow the pathway)
- **Symptoms when this gene pathway is compromised:**
 - depression, ADHD, anxiety, stimming

COMT support

- - Molybdenum as needed
- - **Magnesium (glycinate or malate)**
- - **lithium orotate**
- - B6
- - Vit C
- - Niacin
- - **SAMe**
- - Adrenal Adaptogens like ashwaganda, holy basil, rhodiola
- - Watch phenylalanine and tyrosine
- - MSM, NAC or sulfur containing foods (if tolerated)
- - Blood sugar stabilization (diet, sleep, exercise, chromium)

CBS concerns

- Acts as a gate-keeper between homocysteine and the rest of the trans-sulfuration pathway
- Some genes result in up-regulation and some in down-regulation

Either mistakes get made when the body is trying to make glutathione and you get excess taurine in the urine, or it slows and acts like a clog in the methylation drain (resulting in sulfur and ammonia and inflammation back-up)

- A good way to track is **watch homocysteine** levels (ideal 6-7) or monitor behaviors when you push methyl donors
- **Watch for sulfur and ammonia concerns**
- **These are your more sensitive patients**, especially if there is also a BHMT concern

CBS symptoms

If the CBS pathway is not working properly the result is:

- Brain fog
- hypersensitive to any sort of detox
- Pain
- can't tolerate sulfur donors for more than a few days
- Chemical sensitivity

Treating elevated homocysteine (and hence supporting CBS)

- phosphatidyl choline 1000mg up to 3 times daily
- NAC- 900 mg twice daily (I prefer as PharmaNAC)
- Glycine- up to 4000mg daily (especially if they have chemical or pesticide exposures)
- B2- 100mg or 200mg
- B6- up to 200mg, starting with 50mg of P5P
- B1- 100mg
- Creatine- up to 1 tsp of powder
- Make sure they have adequate zinc and iron

Other CBS support to consider

- molybdenum
- manganese
- zinc
- EDTA
- slippery elm
- BH₄
- CoQ10
- NADH ribose
- SAM
- mB12
- methyl folate

Elevated ammonia

- Labs: orotic acid high on OAT test, ammonia elevated in urine or blood (has to be immediately frozen and not very stable)
- Symptoms:
 - brain fog
 - memory loss
 - poor focus (ADD symptoms)
- Treatments:
 - reduce high ammonia foods in the diet (meat)
 - yucca root 2-3 times daily
 - charcoal 1-2 times daily
 - slow down on methyl-donors
 - BH4

MAO-A

- This gene is involved in breaking down serotonin, NE and dopamine. When this is in combination with COMT +/- one may be more prone to develop Obsessive Compulsive Disorder (OCD), mood swings, aggressive and/or violent behavior, and personality disorders. Tryptophan stores can get depleted and urine tests may show high levels of 5HIAA (5-hydroxy indole acetic acid). Focus is to balance serotonin and neurotransmitters.
- Someone with MAO-A concerns in general seems to show more aggression and mood swings
- Treatments to consider: **5HTP, BH4, address ammonia if elevated (charcoal, yucca root)**
- **Focus on balancing serotonin and neurotransmitters**



Microbes and Biofilm

To Be Discussed
Tomorrow
stay tuned.....



Amy Derksen, ND

www.holistichealingarts.org

Holistic Healing Arts
22815 Edmonds Way
Edmonds, WA 98020

Phone 425-582-7678
Fax 425-582-7032

Useful Resources

- Upcoming protocol trainings and classes on Autonomic Response Testing, Neural Therapy and Lyme treatment protocols:

www.klinghardtacademy.com

- Suggested training for those interested in autism:

Medical Academy of Pediatric Special Needs-

www.medmaps.org

Autism One-

www.autismone.org