

Autism:

Pathways to Recovery

A Parents' Guide to Using
Nutrigenomics to Optimize
Children's Health



Workbook

NRI

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Workbook

Discussion Group

<http://ch3nutrigenomics.com>

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INTRODUCTION

My approach to autism, as well as other chronic neurological issues, is somewhat different than others in these fields. I do not believe in telling you what to do.

I believe that knowledge is power and that the more well informed you are about the process going on in the body, the better position you will be in to make informed choices as to supplementation and the path to health and wellness. For this reason I spend a lot of time talking about the “why” behind a choice or a suggestion as well as looking at a great deal of biochemical test data to help you to learn how to monitor and follow your progress on this program.

We also rely heavily on molecular biology to help guide you with the choices you make. The tools that we use are not meant to replace the need to consult with your doctor. They are meant instead to serve as additional tools to help you while you work in conjunction with the doctor of your choice.

I believe that autism, as well as other chronic conditions are multi-factorial in nature, compromising an underlying genetic susceptibility with an infectious disease component as well as environmental toxins. I feel that it requires time and patience to slowly unravel the pieces of this complex puzzle for each individual.

This is a marathon; it is not a sprint. I cannot promise any magic bullets; however, I do promise to be here to help you to understand the pieces of this puzzle. I am committed to pursuing any missing pieces we need, even if it is only needed to help a single child or one individual adult.

This workbook is being provided as a beginner’s guide to the protocol. It is a step-by-step approach to help you begin the journey—to take those important first steps in the marathon. It includes daily/weekly ideas on how to get started, suggestions to increase your knowledge base and links to encouragement and support you will need along the way.

With love, hope and a hug,

Dr. Amy

“Please take a deep breath, and stop running as fast as you can. It is a marathon, not a sprint. It is okay to slow down and take your time. There is no prize for getting there first; we just have to get there!”

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WEEK 1

DAY 1: Discussion Group

Welcome to the Yasko 'family'. We are glad you have chosen to explore this protocol to improve your health and well being. Take a deep breath and remember that you are taking the first steps of a marathon. Relax and move at your own pace. Try not to stress yourself throughout this process.

Stress does really bad things to the body, and there is no need to stress or rush. You and your child will get there. Just take it one step at a time and know that you are not alone. There are many veteran members ready and willing to help you.

The place to start is by joining our discussion group at www.ch3nutrigenomics.com and read Dr. Amy's welcome message. Please register as a new member, by creating a username and inserting the relevant information.

We have members from all over the world. Please add your location in the box provided. Be sure to click the "submit" button at the bottom of the page.

Please note that your registration is subject to approval and can take up to 48 hours (you may **or** may not receive confirmation of activation). If after 48 hours, you need assistance in reaching the site, contact the Moderator, Erin Griffin at griffkoom@verizon.net

When your registration for the Discussion Group is approved, read, read, read.

It is suggested that you stick to the following forums until you are comfortable with the protocol:

Welcome

- New Members
- The Basics
- Dr. Amy's Recent Posts and New Findings

These forums are locked (locked icon on far left of each forum) which means that they are for information only and can only be edited by the moderator. Other forums have a page icon where one can post or respond to a question.

Look through the forums listed on the log in page to find the best fit for your question, click to open that specific forum (Genetics, Supplements, etc). To post on an existing thread, click on that thread to open it. If no existing thread fits your needs, you can start a new thread by clicking on the New Topic button above and to the left of the existing thread list.

This entire site may seem overwhelming. DO NOT PANIC. You can do this. It will take time to learn how to navigate through the forums but, over time, this Discussion Group will become your favorite resource in implementing the protocol and will keep you up-to-date with the most recent information.

DAY 2: Order Nutrigenomic Testing and Print Resources

Order the Nutrigenomic Test (Comprehensive Methylation Panel with Methylation Pathway Analysis) and the book “Puzzle of Autism” OR “Pathways to Recovery” (when available) from **www.holisticheal.com**

It takes approximately 8-12 weeks for results to come in. Nutrigenomics integrates concepts in molecular biology and genomics to study how foods and nutritional supplements may assist in maintaining overall health and wellness.

This Nutrigenomic test, presently the most comprehensive available, contains more than two dozen SNPs (Single Nucleotide Polymorphisms) and covers the Methylation cycle in a way no other test does. A SNP (pronounced “snip”) is a small genetic variation within a person’s DNA sequence. Each of these variations can have an impact on an individual’s nutritional status, and in combination, these SNPs may have a *significant* impact on an individual’s health and well being.

Your Nutrigenomics test kit will arrive in a few days and will include:

- Instructions for obtaining a sample
- Nutritional Supplement Addendum A
- 3 lancets
- Alcohol swabs
- Protein saver card
- FedEx shipping materials (not prepaid)
- Guide to Nutrigenomic pamphlet
- Genetic Bypass Book
- Nutrigenomic DVD set
- Requisition Form

The following is a sample of the test results:

Gene Name	Variation	Result	Call
COMT	V158M	+/-	Hetero
COMT	H62H	+/-	Hetero
COMT	61	-/-	G
VDR	Taq	+/-	Hetero
VDR	Fok	+/-	Hetero
MAO A	R297R	+/+	T
ACAT	102	-/-	G
ACE	DEL16	+/+	DELETION
MTHFR	C677T	-/-	C
MTHFR	3	-/-	C
MTHFR	A1298C	-/-	A
MTR	A2756G	+/-	Hetero
MTRR	A66G	+/-	Hetero
MTRR	H595Y	+/-	Hetero
MTRR	K350A	+/-	Hetero
MTRR	R415T	-/-	C
MTRR	S257T	-/-	T
MTRR	11	-/-	G
BHMT	1	+/-	Hetero
BHMT	2	+/-	Hetero
BHMT	4	+/-	Hetero
BHMT	8	+/-	Hetero
AHCY	1	+/-	Hetero
AHCY	2	-/-	T
AHCY	19	-/-	A
CBS	C699T	-/-	C
CBS	A360A	+/+	T
SUOX	S370S	-/-	No Support Needed
SHMT	C1420T	-/-	G
NOS	D298E	-/-	G

DAY 4: Organization

Having an organizational tool is vital. This marathon has a lot of information. To try to keep it all in your head would be overwhelming. Choose one of the following, use a combination of them or create one of your own. The important thing is that you set up a system that works for you.

Approach #1

Get an “AT-A-GLANCE” month by month calendar book. Use this to plan the supplements for each week. Place a post-it on each month with what needs to be added/increased/reduced at some point in that month based on Dr. Amy’s comments on tests and what “protocol” needs to be addressed and to mark what days to do B12 (nasal, injection, patch), charcoal flushes and EDTA baths. Also, use the calendar to plan when to re-test for UAA, CSA and MAP and to schedule UTM/UEE and FM.

Keep a separate running list of current supplements and doses organized by the time of day given (at breakfast, after school, at dinner and before bed). This can be a word document and updated each month.

Keep a separate binder organized in the following manner:

- Testing - Copies of test results and UTM graphing. (Download files from Discussion Group/the Basics Forum)
- MPA (Methylation Pathway Analysis) - Genetic results with the supplements listed.
- Discussion/Chat Groups - Relevant posts, diagrams, supplements, and protocols printed from Discussion Group.

Approach #2

Use a 3-ring binder with section separators and a 3 ring folder. The folder is for copies of test results.

The binder is separated into several sections:

- Important, frequently referred to posts in the Basics and Getting Started sections from this Discussion forum.
- Nutrigenomic Section—results and relevant posts
- Supplements Section—Relevant posts
- Supplements Section—Current supplements given and “what comes next” lists. (This is great information to have in an emergency if mom/dad is not available....the caregiver could pick this section up and move forward without difficulty because it contains a complete history of supplementation and reactions.)

- A section for each issue being or to be addressed (Step 1 supports, strep, clostridia, etc)
- Testing Sections - Each test has its own section: MAP, UAA, UTM, UEE, FM, CSA, etc

DAY 5: Excitotoxins

A very important piece of the puzzle is limiting excitotoxin damage. Dr. Amy’s paper, “The Role of Excitotoxins in Autistic Type Behavior” explains in great detail the damage that excess excitotoxins can have on the body and how it relates to our children’s behavior and health. Learning the importance of balancing GABA and glutamate and limiting calcium is essential to beginning the healing process.

As Dr. Amy states in the Puzzle of Autism book: “ Excitotoxins will continue to damage more nerves and wreak more havoc in the body if they are not addressed. Therefore the excitotoxin imbalance is the best place to start to put the pieces back together. Once excitotoxins are under control, it is easier to balance the rest of the body.”

Key Definitions:

- Excitotoxins –A toxic molecule that stimulates nerve cells so much that they are damaged or killed.
- GABA –A calming neurotransmitter that is essential for speech.
- Glutamate – The main excitatory neurotransmitter in the body that is essential for learning and for both short-term and long-term memory.

Printed resources relating to excitotoxins include:

- “Pathways to Recovery” (when available), Chapter 4
- “Puzzle of Autism,” pages 5-11
- “Neurological Inflammation” and “Putting It All Together” DVDs
- Dr. Amy’s paper, “The Role of Excitotoxins in Autistic Type Behavior”
 - ◉ Go to www.dramyyasko.com
 - ◉ Click on “Publications”
 - ◉ Scroll down to “The Role of Excitotoxins in Autistic Type Behavior”

DAY 6: The Importance of the Diet

While you or your child may already be on the GF/CF diet (which Dr. Amy recommends), there is an additional step to the diet that needs to be made in order for the inflammatory process to abate and the recovery process to begin.

This additional dietary step/intervention is to remove/reduce excitotoxins from the diet and from supplements as well.

Excitotoxins are: Glutamate, Glutamic Acid, MSG, Glutamine (which converts to Glutamate), Aspartate, Aspartame, NutraSweet, and Cysteine.

Foods that are especially high in glutamate are: Soy, Peas, Mushrooms, Tomatoes, Parmesan Cheese, Yeast, Milk, and Wheat.

It is important to be conscious of the total load of glutamate and to think of your or your child's ability to tolerate more glutamate as if his/her cup is already full to the brim and about ready to overflow.

For a full list of excitotoxins see frequently asked questions at the back of this workbook.

Web Resources

- The Official GFCF Diet Support Group Website: www.gfcfdiet.com
- Autism Network for Dietary Intervention: www.autismndi.com
- Battling the MSG Myth Site: www.msgmyth.com
- PKU Diet: <http://depts.washington.edu/pku/about/diet.html>

Print Resources

- “Puzzle of Autism,” pages 168-174
- “Pathways to Recovery” (when available), Chapter 4
- “Special Diets for Special Kids” by Lisa Lewis
- “Battling the MSG Myth Cookbook” by Debbie Anglesey

DAY 7: Visualize Recovery

Each individual has a different idea of what recovery means to them.

Please take some time and think about or make a list of what recovery means to you and those you love.

You may want to view www.recovermychild.com which is one of Dr. Amy's sites where parents share their journeys of hope and inspiration.

Most people have no conscious control over their thoughts and tend to think negatively most of the time! Your most repeated thoughts dominate not only your mental world, but impact all aspects of your life. Thoughts, if powerful enough, are accepted by the subconscious mind changing your overall mindset—which in turn changes your habits and actions. The stronger the feelings and emotions associated with your thoughts and mental images, the stronger their impact on your life.

Certain traits of character and skills are necessary, too, such as faith in yourself and in your abilities, patience, perseverance, concentration, self-discipline and strong motivation. Creative visualization, which is the conscious desire and visualization of a goal, can change your life and improve your motivation to “do whatever it takes” to achieve that goal.

Our goal is recovery of our children.

Take a deep breath. Relax. Close your eyes. Visualize your recovered child. What does your recovered child look like? What behaviors are gone? What positive behaviors have taken over? What academic success has your child achieved? What are things you can do with a recovered child that you cannot do now? What does vibrant health in your child look like? Envision the life changes for your entire family recovery of your child brings.

Make your visualization as clear and detailed as possible. Sometimes writing down those wonderful thoughts as they come to you will help give you clarity...and increase your motivation to get to that place.

If this is a new concept to you, visualize steps toward that ultimate goal. What does the next step toward recovery look like? Now what do you need to do next to make that next step a reality.

Whenever you have a negative thought (I can't do this, or we seem to be stuck), drive those thoughts out of your mind with positive replacements. (I CAN do this) and take the necessary action to propel you forward. That may be posting a question on the Discussion Group. It may be re-reading a portion of the Puzzle of Autism/Pathways to Recovery book. Perhaps there is a DVD you need to review to give you clarity of your next move. Maybe it means adding that next supplement you have been hesitant to add for fear of detox. Identify that step and take it.

Visualize your success in moving forward with this marathon. Remember, it takes time to recover a child...and we must continue to shake off negativity—whether it is from our own thoughts or negative input from unsupportive and unknowledgeable people around us.

DAY 9: Biochemical Testing

The following biochemical tests are run throughout the protocol as needed to determine additional supports needed for each individual. When purchased thru www.holisticheal.com the total cost includes Dr Amy's interpretation and shipping from you to that particular lab within the United States.

Urine Toxic Metals Test- (UTM)

- Determines current level of detox.
- Done weekly biweekly or monthly depending on finances.
- Turnaround time for processing can take approximately 2 weeks.

Urine Toxic Metals Test- (UTM) & Urine Essential Elements Test- (UEE)

- Determines mineral levels.
- Repeated every 4-6 weeks (during times of heavy detox it is important to keep an eye on minerals as they can be depleted).
- Turnaround time for processing can take approximately 2 weeks.

Urine Amino Acids Test- (UAA)

- Determines ammonia, amino acid, and glutamate levels.
- Repeated every 3 to 4 months unless otherwise indicated.
- Turnaround time for processing can take approximately 3 weeks.

Metabolic Analysis Profile- (MAP)

- Determines current level of methylation support, and give a sense about gut microbes and dopamine balance in respect to norepinephrine.
- Repeated every 3 to 4 months unless otherwise indicated.
- Turnaround time for processing can take approximately 3 weeks.

Comprehensive Stool Analysis- (CSA)

- Determines Gut and bacterial issues.
- This test can be repeated every 3 to 4 months unless otherwise indicated.
- Turnaround time for processing can take approximately 3 weeks.

Fecal Metals Test- (FM)

- Determines current level of detox through the stools.
- Repeated as necessary.
- Turnaround time for processing can take approximately 2 weeks.

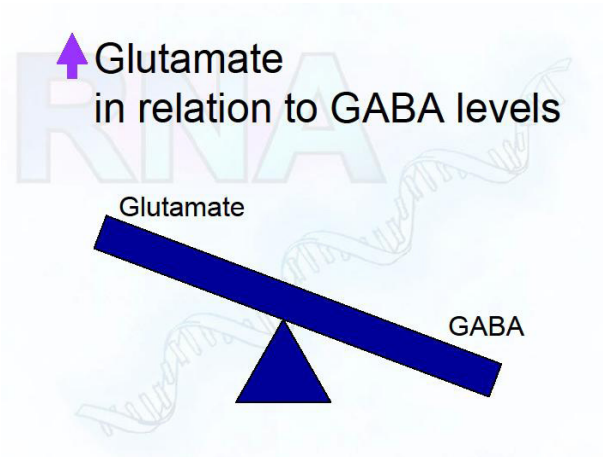
GI Function Profile- (DNA Stool test)

- Determines bacterial issues including anaerobes.
- Repeated as Dr. Amy requests, depending on anaerobic bacteria levels.

DAY 10: The Importance of Balancing GABA/Glutamate

Since we are viewing Autism/ASD/CFS as multifactorial diseases that have their roots in neurological inflammation, it is critical to understand the pivotal role that Glutamate excess along with a GABA deficiency play in setting the stage for the progression of symptoms.

As a starting point, let's think of this balance as if we are looking at a seesaw and when glutamate is too high GABA is too low.



When **glutamate is elevated** we can see the following types of symptoms, please check any that you or your child may be experiencing:

Increased:

- Excitotoxin damage
- Opioid effects
- TNF alpha (leading to leaky gut)
- Acetylcholine
- Bladder contraction
- Strabismus
- Stims (self stimulatory behavior)
- Seizures

Decreased:

- Glutathione
- Sleep
- Eye contact
- Myelination

When **GABA is low** we may observe the following symptoms, please check any that you or your child may be experiencing:

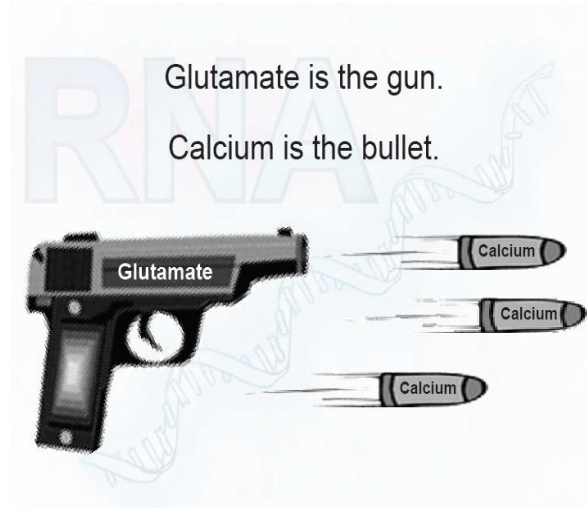
Decreased:

- Language/speech (particularly comprehension) remember that GABA puts the spaces between our words.
- Social behavior
- Eye contact
- Bowel function (retention issues)

Increased:

- Anxiety
- Aggressive behavior

Increased glutamate leads to increased calcium flow into neurons, which causes nerve damage. Nerve damage leads to increased inflammation. If Glutamate and Calcium remain too high and this process of nerve damage is left unchecked, then cytoskeletal and membrane damage can also occur.



Evaluating calcium levels and utilizing Vitamins D&K are important to re-establishing this balance as well. Vitamins D&K are fat soluble vitamins and without a diet high in dark leafy greens these will need to be supplemented on a daily basis. A Urine Essential Elements test should be done to establish baseline mineral levels.

Controlling calcium levels may be done by switching to chamomile and/or nettle supplementation rather than directly supplementing with calcium. Increasing magnesium relative to calcium, using zinc to limit glutamate damage and watching lithium, iodine and boron levels will all aid in reducing glutamate levels and reversing the flow of calcium into the neurons and back to the bones and teeth.

URINE ESSENTIAL ELEMENTS



LAB#: U000000-0000-0
 PATIENT: Sample Patient
 SEX:
 AGE:

CLIENT#:
 DOCTOR#:

ESSENTIAL ELEMENTS

ELEMENTS	RESULT µg/mg CREAT	REFERENCE RANGE	PERCENTILE					
			2.5 th	16 th	50 th	84 th	97.5 th	
Sodium	1550	1000- 5200						
Potassium	2330	850- 3200						
Phosphorus	360	250- 1300						
Calcium	44	55- 400						
Magnesium	120	45- 230						
Zinc	0.9	0.1- 2						
Copper	0.24	0.01- 0.09						
Sulfur	850	280- 1500						
Manganese	0.003	0.0005- 0.01						
Molybdenum	0.12	0.016- 0.18						
Boron	2.5	0.8- 5.7						
Chromium	0.08	0.01- 0.15						
Lithium	0.013	0.008- 0.2						
Selenium	0.17	0.05- 0.35						
Strontium	0.11	0.06- 0.45						
Vanadium	0.02	0.004- 0.045						
			68 th		95 th			
Barium	0.002	< 0.015						
Cobalt	0.001	< 0.04						
Iron	< dl	< 0.45						
Zirconium	0.0008	< 0.005						

CREATININE

	RESULT mg/dL	REFERENCE RANGE	2SD LOW	1SD LOW	MEAN	1SD HIGH	2SD HIGH
Creatinine	21	35- 225					

SPECIMEN DATA

Comments:			
Date Collected:	00/00/0000	Method:	Collection Period:
Date Received:	00/00/0000	<dl:	Volume:
Date Completed:	00/00/0000	Provoking Agent:	Provocation:
Essential elements are reported as µg/mg creatinine to account for urine dilution variations. Reference ranges are representative of a healthy population under non-challenge or non-provoked conditions. Detoxification therapies can cause significant elevations of certain essential element levels (e.g. Cu, Zn).			
			V10.00

DAY 12: Resources

Dr. Amy strongly encourages all to read, learn and pay it forward. As she puts it:

“I feel that if we all do our part, more and more children will be able to recover. My part is to share as much information as I can and to continue to uncover any missing pieces of the puzzle. Your part is to take advantage of the tools to understand the pieces that you need for your child, and to find a doctor to work with you who is open to the process and will help to support you medically.”

The following is a list of resources available:

- “RNA Educational Starter Packet ESP”
- “Autism Educational Starter Packet ESP”
- “Nutrigenomics Educational Starter Packet ESP”
- “Dr. Amy Yasko’s Supplement Guide” DVD
- “Neurological Inflammation with Dr. Amy” DVD
- “Putting It All Together”, Jan 2004 DVD
- “Heal Your Body Naturally: The Power of RNA” Book
- “The Pathways to Recovery: Putting It All Together” Book 2006 edition
- “Genetic Bypass” Book
- “Puzzle of Autism” Book
- “Pathways to Recovery” Book (when available)

- Four Set Edition: “Stress, Metals, and Microbes, Multifactorial Components, and Nutrigenomics”:

#1 Stress - 2 disc set

- “An Individualized Approach: Introduction to The Yasko Protocol
- “Roll of Stress”
- “Stress and Aggression”

#2 Metals and Microbes - 4 disc set

- “MTHFR, Methylation, and Metals”
- “Microbes, Metals, Methylation”
- “Relationship of Microbes and Metals”
- “Bacterial/Aluminum Case Studies”
- “Viral/Heavy Metal Case Studies”

#3 Multifactorial Components - 5 disc set

- “The Pathways to Recovery
- “Autism as a Multifactorial Disease
- “Underlying Factors in Autism
- “Membrane Fluidity
- “BH4, NOS, and Microglial Activation
- “An Individualized Approach: Pieces of the Puzzle

DAY 13: Assessing Current Needs

If you plan to order testing through HHI, Please send in previous testing results to Dr. Amy's office for inclusion in your biochemical file.

Note that since testing has previously been reviewed by your practitioner, Dr. Amy will utilize this as a reference, but not supply comments directly.

At this time it is suggested that you review past testing to assess current needs for organ support. If previous testing is not available, then you need to rely on symptoms and behavioral observations.

Please utilize the following checklists to help determine your level of support:

Lab Tests Indicating a Need for Liver Support

- Elevated AST (SGOT) or below normal AST
- Elevated ALT (SGPT) or below normal AST
- Elevated alkaline phosphatase (ALP)
- Elevated lactate dehydrogenase (LDH)
- Elevated billirubin
- Elevated cholesterol
- Elevated triglycerides
- Long term chelation with sulfur based chelating agents
- High level excretion of toxic metals on fecal tests

Lab Tests Indicating a Need for Kidney Support

- Elevated BUN
- Urine excretion/detox of metals for prolonged periods
- High creatinine levels over a prolonged period of time

Lab Test Results and Other Indicators for Pancreatic Support

- Consistently elevated glucose
- Consistently low glucose
- Elevated triglycerides
- Mutations: VDR Fok + - or VDR Fok + +
- Imbalances in pancreatic elastase on a CSA
- Imbalances in chymotrypsin values on a CSA
- Imbalances in SCFA (Iso-butyrate, iso-valerate and n-valerate) on CSA
- Imbalances in LCFA on a CSA

Lab Tests/other Indicators for need to Reduce Calcium

- Elevated calcium relative to magnesium on a UEE
- Elevated calcium relative to magnesium on a red blood cell element test
- Stims

DAY 14: Understanding Step 1 Support

Though our main focus now is on Step 1 Support, Dr. Amy's protocol is a three-step program. All of the groundwork you are doing now is in preparation for the steps that follow.

Step 1: Preparation, diet, and supplementation: Neurological Inflammation

Step 2: Detoxification: Toxin Elimination

Step 3: Nerve generation and repair: Remyelination

For more information on the above you may wish to read the "Pathways to Recovery" chapter 4 and the Puzzle of Autism pages 41-88.

Support to help the body with chronic inflammation, balance glutamate and GABA, support the organs, balance minerals, and address chronic bacterial issues in the system. This step can be implemented before receiving your nutrigenomic profile.

The usual starting point is to slowly introduce some of the top Step One supplements listed below. It is recommended that supplements be introduced with the "low and slow" method – starting with a sprinkle and working up over the course of several days to a week depending on the response. How you proceed with supplementation and which of these are best for your program will depend on the individual, but the idea is to lay the nutritional groundwork, remove excitotoxin triggers and add supports to help with inflammation before embarking on any form of detoxification. It is recommended that you implement this program in conjunction with a healthcare practitioner.

Neurological Health Formula (Tablets)

Health Foundation, Nerve Calm and Stress RNA's

Bowel and Behavior RNA's as needed

Magnesium (citrate or drops)

Zinc

Vitamin D

Cod Liver Oil

Super Digestive Enzyme

Ora-Adren-80

Immuno Forte

OraKidney

OraPancreas

DAY 16: Collecting UTM/UEE Sample

The following are basic instructions for obtaining a urine sample for a Urine Toxic Metals (UTM)/Urine Essential Elements (UEE) test. For more comprehensive suggestions please refer to the Discussion group/Basics Forum, post entitled *Tips on Testing*.

Dr. Amy prefers that you stay on ALL supplements for testing, unless specifically instructed otherwise on previous testing. She prefers “spot/random urines” for both the UTM/UEE tests as opposed to the 24-hour collection.

It is suggested to obtain your samples at a consistent time of day. For example, if you decide to collect a UTM/UEE sample on Sunday at 5pm, the next time you collect a sample, ideally you would attempt to do this near 5pm. Dr. Amy prefers the later afternoon urines, but if it is easier to collect a morning or overnight urine, that is fine too. The important part is to try to be consistent with the time of day because creatinine tends to fluctuate throughout the day.

Fill out the paperwork and ship according to the package instructions. If the test was ordered through HHI then the invoice is only partially filled out and the test is already paid for. You still need to provide the following info: name, date, date of birth, time of collection, height, and weight. You will also need to sign and date the release.

If your child is not potty trained or you are having difficulty obtaining a sample, please refer to Discussion group/Basics Forum, post entitled *Ideas for Collecting Urine from Non-Potty Trained Kids*.

Please download the preferred supplement list formats from the Discussion group/Basics Forum, entitled *Methylation Pathway Analysis/Supp by Mutations list-Download*

If you have ordered your test through HHI, Please complete the supplement list(s) reflecting supplementation at the time of testing. Note the date of testing and send them via fax (207) 824-0975 or to kelly@holistichealth.com on the day of shipping your sample. This will allow ample time for it to be placed in your chart for Dr Amy’s reference when commenting on testing.

On tests run thru HHI, your results and Dr Amy’s comments will come by email from Kelly@holistichealth.com. The turnaround time is approximately 2 weeks depending on the lab process time and Dr Amy’s schedule. If this is your first test and you have not received your test comments for the UTM/UEE after 3 weeks please contact the office to make sure your email address is correct.

Date Sample Sent: _____

DAY 18: Excitotoxins & Calcium

If you have not already done so, start limiting excitotoxins and switch calcium to natural forms. Refer to Addendum A that came in your test kit or download it from the Discussion Group/ The Basics forum, and the “Puzzle of Autism” / “Pathways to Recovery” books for the suggested forms of natural calcium.

DAY 19: “Puzzle of Autism” and “Pathways to Recovery”

Continue reading the Puzzle of Autism/Pathways to Recovery Books. This is also a good time to learn about the rationale behind this protocol prior to the arrival of your Nutrigenomics results. For many, this is also a time of anxiety because you may not feel like you are doing “enough.” **Take a deep breath.** You are doing exactly what you are supposed to be doing. If something does not make sense the first time you read it or the second, log on to the forum and search for an answer to your question.

Discussion Group Search Example

The following is an example of a question that many have early on, “What do I do for sleep issues such as insomnia?”

Let’s go step by step and search for an answer:

1. Log In to www.ch3nutrigenomics.com
2. Click on the Search icon in the top menu:



3. Enter key word(s) for your search. If you also enter “griffkoom” in the author box, you will only get responses to your topic that originated from Dr. Amy or the moderator, Erin Griffin.

*Note: Search for Keywords: You can use AND to define words which must be in the results, OR to define words which may be in the result and NOT to define words which should not be in the result. Use * as a wildcard for partial matches.

Dr. Amy's Forum Forum Index

Search Query

Search for Keywords:
You can use AND to define words which must be in the results, OR to define words which may be in the result and NOT to define words which should not be in the result. Use * as a wildcard for partial matches

Search for Author:
Use * as a wildcard for partial matches

Search Options

Forum: All available

Category: All available

Display results as: Posts Topics

Search previous: Search topic title and message text Search message text only

Sort by: Ascending Descending

Return first 200 characters of posts

Search

All times are GMT - 1'

4. Once you hit the search button at the bottom, you will receive all the responses containing the keyword(s) you have entered. You can also limit by the Forum and Category, but most do not do this unless they are searching for a very specific post.

Search found 10 matches

Dr. Amy's Forum Forum Index

	Forum	Topics	Author	Replies	Views	Last Post
④	Posts by Dr Amy	Hormones	griffkoom	0	183	Sat Jan 24, 2009 8:12 griffkoom ➔
④	Posts by Dr Amy	Acetylcholine	griffkoom	0	126	Fri Jan 23, 2009 8:42 griffkoom ➔
④	Posts by Dr Amy	Ammonia RNA/Seizure	griffkoom	0	148	Tue Jan 13, 2009 11:40 griffkoom ➔
④	Posts by Dr Amy	Insomnia and Fatigue	griffkoom	0	203	Fri Feb 22, 2008 4:52 griffkoom ➔
④	Posts by Dr Amy	Adult sleep issues	griffkoom	1	286	Thu Dec 13, 2007 8:18 griffkoom ➔
④	Parents and Adults	recommendations here4correcting sleep cycle havent helped me [D Goto page: 1, 2]	ruolin	19	525	Thu Dec 13, 2007 8:18 griffkoom ➔
④	Behaviors	Wow! Major saliva ,spit smearing !	marie4k	11	442	Sun Jul 09, 2006 11:24 Lainie ➔
④	Medicines	Naltrexone	princess@juscuz.com	3	604	Tue Aug 16, 2005 1:53 griffkoom ➔
④	Testing/metals test results UTM	Change in Aaron [D Goto page: 1 ... 5, 7, 8]	kksokolski	114	3651	Sun Aug 14, 2005 6:55 griffkoom ➔
④	RNA	Can RNA cause mouth sores?	alpha	5	250	Sun Aug 07, 2005 8:13 alpha ➔

5. You can then select the posts seem to relate closest in title to the issue you are experiencing. If more than 100 results return, you may wish to add an additional “and” or “not” to your search to further limit the results.

Transitioning From Another Protocol

It may be difficult to blend Dr. Amy's protocol with others for a variety of reasons. Many supplements used on other approaches may contain excitotoxins, this may be counterproductive, please use your own judgment and consult your physician on what is best for you or your child. Make changes gradually. Just by stopping some supplements you may see unwanted detox or behaviors. As we limit excitotoxins in the diet we also want to limit excitotoxins in our supplementation as well.

For instance, many use glutamine for the gut— we are trying to avoid glutamine especially early in the program. Chelated minerals may be chelated with problematic amino acids and should be avoided. Vitamin B6 is widely used in other protocols, but may be counterproductive. Methyl B12 shots may or may not be best for you/your child early and will be dependent on your nutrigenomic results.

Even if you/your child has been on many supplements before with other protocols, everyone needs to go through Step 1 to get the body balanced and prepared for detox. You may choose to slowly wean off the counterproductive supplements and slowly make the transition over to Dr. Amy's Step 1 supports. Please keep in mind that this change alone can, in some individuals, lead to some mild detox, as the change in supplements was sufficient to trigger the body's natural detoxification process. If you feel this is happening, please look to the Parent Discussion Group for support and consider that this is an indication that some additional testing, especially a UTM, would be appropriate at this time.

Only by looking at the specific ingredients in the supplements will you be able to determine compatibility with this protocol. If you are having difficulty, post your current supplement list with a short description of your child and his/her specific issues and the veteran members will help suggest options for you to consider while making this transition. Of course, the ultimate decision is yours as to which supplements you use.

“Knowledge Empowers”

WEEK 4

Days 22 – 28: Tools to Recognize and Control Detox

Continue Reading the “Puzzle of Autism” and “Pathways to Recovery”

UTM/UEE Results

You may be receiving the results of your UTM/UEE test this week. The first page of your results will show the excretion of metals as well as creatinine. Remember that it is important to graph your results because it is the cumulative detox we look at, not just a single test. You can access the metals graphing program on the Discussion Group/ The Basics forum *Metals Graphing Tool*.

The second page of your results will contain the essential elements. Dr. Amy will note if mineral support needs to be added or decreased. You will then, slowly, adjust the mineral supplementation accordingly.

Recognizing Detox

Detox has many faces. It may be an increase in hyperactivity, increased stimming, recurrence of old obsessions, increases in OCD behaviors, less language or effective use of language, rashes, fever, cold like symptoms, increased difficulty with going to sleep etc. Some may even become lethargic because they just do not feel well. Any behavior or feeling that is considered “out of the ordinary” for you or your child or even an increase in certain behaviors/symptoms may be considered as possible detox. One way to confirm your suspicions is to send in a UTM or FM test.

“When in doubt, run a UTM or FM”

Controlling Detox

To help with the symptoms of detox, you can either increase the calming supplements and RNAs, pull out or reduce the detoxing supplement(s) until detox subsides to a tolerable level or until you are back to a calm place.

The calming supplements include Chamomile, Relaxation, Heath Foundation RNA, Stress RNA, Nerve Calm RNA, Behavior Support RNA, etc. You may also need to add in the supplements on the Glutamate and GABA list OR increase them to help offset the changes in behavior/symptoms. Increases in supports that help to reduce inflammation can also be helpful.

There is no right or wrong here, do what is best for you, your child and your family!

“This is a marathon, not a sprint.”

The following is a sample report of a CSA:



LAB#: F000000-0000-0
 PATIENT: Sample Patient
 ID: PATIENT-S-00550
 SEX: Male
 AGE: 5

CLIENT#: 12345
 DOCTOR:
 Doctor's Data, Inc.
 3755 Illinois Ave.
 St. Charles, IL 60174

Comprehensive Stool Analysis

MICROBIOLOGY

Bacteriology Culture					
Beneficial flora		Imbalances		Dysbiotic flora	
Bifidobacter	3+	Bacillus spp.	4+	Citrobacter freundii	4+
E. coli spp.	3+	Gamma strep	4+		
Lactobacillus spp	2+	Beta strep, not Group A or	3+		
Enterococcus spp.	0+				

Mycology (Yeast) Culture		
Normal flora	Dysbiotic flora	
	Saccharomyces cerevisiae	2+

Beneficial flora: In a healthy balanced state of intestinal flora, the beneficial bacteria make up a significant proportion of the total microflora. The beneficial flora have many health-protecting effects in the gut including manufacturing vitamins, fermenting fibers, digesting proteins and the disaccharide lactose, and propagating anti-tumor and anti-inflammatory factors. Acidophilus, Bifidus, and Enterococcus produce lactic acid and short-chain fatty acids. The fermentation of fibers by beneficial bacteria and subsequent production of short chain fatty acids is crucial in lowering colonic pH and preventing the proliferation of microbial pathogens, including bacteria and yeast. Enterococcus has antibacterial activity against methicillin-resistant S. aureus (MRSA) and food-borne pathogens.

Date Collected: **6/29/2007** Comments:
 Date Received: **7/2/2007**
 Date Completed: **7/13/2007**

Obtaining CSA Sample

The following are basic instructions for obtaining a stool sample for a Complete Stool Analysis (CSA) test or GI Profile Test. For more comprehensive suggestions please refer to Discussion Group/ The Basics Forum post entitled "Tips on Testing."

Follow the instructions that come in your kit, but know that Dr. Amy prefers that you stay on ALL supplements for testing, unless instructed on previous testing.

Fill out the paperwork and ship according to the package instructions. If the test was ordered through HHI then the invoice is only partially filled out and the test is already paid for. You still need to provide the following info: name, date, date of birth, time of collection, height, and weight. You will also need to sign and date the release.

Stool samples can be taken any time of the day. Make sure to collect from as many areas of the stool as possible because bacteria live in colonies.

Some ideas on getting stool samples:

- You can drain the water out of the toilet and insert the collection tray.
- Toilet plastic 'Hats' that they use to collect urine/stool in hospitals fit nicely under the lid of the toilet and you can buy them at most pharmacies or hospital supply stores.

Please download the preferred supplement list formats from the Discussion group/Basics Forum, entitled *Methylation Pathway Analysis/Supp by Mutations list-Download*

If you have ordered your test through HHI, Please complete the supplement list(s) reflecting supplementation at the time of testing. Note the date of testing and send them via fax (207) 824-0975 or to kelly@holistichealth.com on the day of shipping your sample. This will allow ample time for it to be placed in your chart for Dr Amy's reference when commenting on testing.

On tests run thru HHI, your results and Dr Amy's comments will come by email from Kelly@holistichealth.com. The turnaround time is approximately 3 weeks depending on the lab process time and Dr Amy's schedule. If this is your first test and you have not received your test comments for the CSA after 4 weeks please contact the office to make sure your email address is correct.

Date Sample Sent: _____

Gut Health Assessment

Look over old testing and records to see what history you/your child may have with gut issues. Please use the following checklists to indicate affected areas:

Lab Tests indicating a need to address bacterial imbalances:

- History of chronic ear infections
- Maternal history of Streptococcal infection
- History of bacterial pneumonia
- Streptococcus, E.coli on CSA
- Other bacterial pathogens on CSA
- Elevated kynurenic on OAT/Metabolic Test, CONFIRM with CSA
- Elevated quinolinic on OAT/Metabolic Test, CONFIRM with CSA
- Low gut pH
- Other: _____

Lab Tests indicating a need to address yeast imbalances:

- Elevated arabinose on OAT/Metabolic test, CONFIRM with CSA
- Presence of yeast on CSA
- Low gut pH, CONFIRM with CSA
- Other: _____

Lab Tests indicating a need to address parasites:

- Parasites on a CSA
- Other: _____

Lab Tests indicating a need to address Helicobacter:

- Helicobacter test
- Other: _____

Please utilize this space to indicate any other gut health symptoms or issues:

Gut Protocol

With respect to the gut, as with all aspects of this protocol, there is no “one size fits all” approach. Sometimes it is difficult to know where to start with support, and there is no easy answer that fits all cases. On the Discussion group/The Basics Forum you will find the Comprehensive *Updated GUT PROTOCOL*. It is a compilation of suggestions for overall gut health, taking biochemical testing and Nutrigenomics into account. As always, work closely with your physician.

Below is a brief summary of **Dr. Amy’s Gut Protocol**:

While it is lengthy and extensive, you will find that everyone needs some of the basic tools, while others need more extensive supports. There are many tools suggested, some you may not have even heard of, but periodic biochemical testing (CSA) and GI Profile (as needed) will help narrow down the necessary supports. The idea is to stay in control of the non-ideal organisms. During times of heavy detox you may need to rely on more tools and supports.

The Three arms of the gut protocol:

1. Bacterial/aluminum detox and pH balance
2. Probiotics and overall gastrointestinal environment
3. Specifically targeted bacteria (strep, clostridia, staph, ecoli etc.)

Friendly Reminders

It is important that you do the following as you continue on your path to wellness:

- Continue layering step 1 supports and documenting in your supplement diary.
- Visit the Discussion Group and read Dr. Amy’s Recent Posts and New Findings forum for updates in this continuously evolving protocol.

The following is a sample of a MAP report:



Metabolic Analysis Profile



63 Zillicoa Street
Asheville, NC 28801
© Genova Diagnostics

Order Number:		
Patient	Completed:	Holistic Health Consultants
Age:	Received:	Amy Yasko ND
Sex:	Collected:	279 Walkers Mills Rd
MRN:	Route Number:	PO Box 309
		Bethel, ME 04217

Malabsorption and Dysbiosis Markers		Reference Range
Malabsorption Markers		mmol/mol creatinine
1. Indoleacetic Acid (IAA)	0.6	<= 9.0
2. Phenylacetic Acid (PAA)	<dl	<dl
3. Dihydroxyphenylpropionic Acid (DHPPA)	7.9	<= 2.2
4. Succinic Acid	1.8	<= 20.0
Bacterial Dysbiosis Markers		mmol/mol creatinine
5. Citramalic Acid	0.6	<= 7.0
6. Indoleacetic Acid (IAA)	0.6	<= 9.0
7. Phenylacetic Acid (PAA)	<dl	<dl
8. Dihydroxyphenylpropionic Acid (DHPPA)	7.9	<= 2.2
9. Benzoic / Hippuric Acids Ratio	0.01	<= 0.02
10. Succinic Acid	1.8	<= 20.0
Yeast / Fungal Dysbiosis Markers		mmol/mol creatinine
11. Arabinose	15.2	<= 42.3
12. Tartaric Acid	4.5	<= 14.1
13. Citramalic Acid	0.6	<= 7.0

Neurotransmitter Metabolites		Reference Range
		mmol/mol creatinine
14. Vanilmandelic Acid (VMA)	1.4	1.2-5.9
15. Homovanillic Acid (HVA)	9.1	0.9-4.4
16. 3-Methyl-4-OH-phenylglycol (MHPG)	1.8	<= 16.7
17. 5-OH-Indoleacetic Acid (5-HIAA)	3.0	1.1-6.5

Cellular Energy and Mitochondrial Metabolites		Reference Range
		mmol/mol creatinine
18. Lactic Acid	2.5	6.3-36.4
19. Pyruvic Acid	1.8	1.1-15.4

The following is an example of a UAA report:

URINE AMINO ACIDS



LAB#:
PATIENT:
SEX:
AGE:

CLIENT#:
DOCTOR: Amy Yasko, ND
Holistic Health
279 Walkers Mills Rd
Bethel, ME 04217

SPECIMEN VALIDITY						
SPECIMEN MARKERS	RESULT	REFERENCE RANGE	2.5 th	16 th	50 th	PERCENTILE 84 th 97.5 th
Creatinine	150	45- 225mg/dL				
Glutamine/Glutamate	23	5- 160				
Ammonia Level	26400	9000- 39000µM				
SPECIMEN VALIDITY INDEX						

ESSENTIAL / CONDITIONALLY INDISPENSABLE AMINO ACIDS						
ESSENTIAL AMINO ACIDS	RESULT µM/g creatinine	REFERENCE RANGE	2.5 th	16 th	50 th	PERCENTILE 84 th 97.5 th
Methionine	9.3	7- 35				
Lysine	66	35- 500				
Threonine	65	60- 230				
Leucine	31	18- 70				
Isoleucine	9.2	8- 35				
Valine	36	12- 50				
Phenylalanine	40	25- 75				
Tryptophan	49	20- 75				
Taurine	600	170- 1200				
Cysteine	60	20- 57				
Arginine	22	8- 50				
Histidine	930	270- 1150				

NONESSENTIAL AMINO ACIDS						
NONESSENTIAL AMINO ACIDS	RESULT µM/g creatinine	REFERENCE RANGE	2.5 th	16 th	50 th	PERCENTILE 84 th 97.5 th
Alanine	160	100- 500				
Aspartate	3.7	7- 23				
Asparagine	74	40- 180				
Glutamine	350	180- 530				
Glutamate	15	5- 45				
Cystine	17	20- 90				
Glycine	880	400- 1800				
Tyrosine	59	23- 113				
Serine	250	130- 400				
Proline	3	1- 45				

Obtaining MAP/UAA Sample

The following are basic instructions for obtaining a urine sample for a Urine Amino Acids Test and a Metabolic Analysis Profile. For more comprehensive suggestions please refer Discussion Group/The Basics forum post entitled, *“Tips on Testing.”*

- Follow the instructions that come with your kit. Do not stop supplements before taking your urine sample unless otherwise instructed by Dr. Amy on previous testing. This would include keeping malic acid on board for the MAP test unless otherwise indicated by Dr. Amy.
- If you can collect enough urine to run both a UAA and MAP together, Dr. Amy can cross-check overlapping markers on these tests. Collect morning/overnight/24 hour urine and split that single sample between the tubes for UAA and MAP.
- Dr. Amy will comment on UAA and MAP tests only once she receives the Nutrigenomic test results. That is why it is suggested to wait for a few weeks after ordering your nutrigenomics and to give you some time to implement changes based on your UEE and limiting excitotoxins. You will receive these results shortly after your Nutrigenomics test results are determined.
- Both the UAA and MAP samples must be sent in as fresh as possible as metabolites disintegrate easily. Therefore they should not be stored for more than a day or two at the most before shipping. It is highly recommended that you take your urine sample over the weekend, say Sunday or early in the week so that you can ship it Monday through Wednesday. But know that it is best to send the urine sample for a UAA and MAP on the same day that you collect it. If you send them at the end of the week, they may get stuck in transit over the weekend and arrive at the lab in a less than fresh condition. Samples must be received by the laboratory within 4 days of collection.
- It is recommended that you avoid eating the following items for 24 hours before running a MAP test: apples, plums, prunes, cherries, cranberries, grapes, pineapple, fruit juices, bananas, rhubarb, plantain, kiwi, raisins, tomatoes, avocados, walnuts, pecans, butternuts, hickory nuts, soda pop, wine, cream of tartar, benzoate or nutrasweet. We all know that this is sometimes not feasible so do what you think is best and try not to stress just make a note of this on your supplement list when you send it to the office.
- If your child is not potty trained or you are having difficulty obtaining a sample, please refer to Discussion group/Basics Forum, post entitled *Ideas for Collecting Urine from Non-Potty Trained Kids*.
- Please download the preferred supplement list formats from the Discussion group/Basics Forum, entitled *Methylation Pathway Analysis/Supp by Mutations list-Download*
- If you have ordered your test through HHI, Please complete the supplement list(s) reflecting supplementation at the time of testing. Note the date of testing and send them via fax (207) 824-0975 or to kelly@holistichealth.com on the day of shipping your sample. This will allow ample time for it to be

WEEK 7

Days 43 – 49: Detox, Reflection and Transitions

- Perform a UTM test.

As you continue to add in Step 1 supports including minerals, you may start to see changes. If so, it is recommended to do a UTM. This will give you an idea if you are detoxing.

Many keep some extra UTM kits on hand in the likelihood of detox, but even if you do not have a kit on hand, you can still collect the urine and store it in the freezer until you your new kit arrives.

Use the chart below to document changes and behaviors you think might be attributable to detox.

Detox Diary

Date	Detox Symptoms	UTM Sent (Y or N)	Suspected Trigger (Dietary Infraction, Supplement Addition, etc.)	Adjustments Made

- Spend some time on the Parent Discussion Group, reading new posts, also “Positive Feedback” forum.

WEEK 8**Days 50 - 56: Genetics**

The following is a summary of the genes that are included in your Comprehensive Methylation Panel with Methylation Pathway Analysis. For those who would like more detailed information, consider reading the Genetic Bypass book and reading the *Genetics 101* post in the Basics forum.

+ + means homozygous and you have 2 copies of the mutations one from each parent

+ - Heterozygous and you have one copy of the mutation

- - No Mutation

The + or - designation is obtained by comparing the sample to a standard database norm. The database used is a proprietary national database chosen by the laboratory. Mutations or Single Nucleotide Polymorphism (SNP): A gene mutation is a permanent change in the DNA sequence that makes up a gene. Mutations range in size from one DNA base to a large segment of a chromosome. A Single Nucleotide Polymorphism or SNP (pronounced "snip"), is a small genetic change, or variation, that can occur within a person's DNA sequence. The genetic code is specified by the four nucleotide "letters" A (adenine), C (cytosine), T (thymine), and G (guanine). SNP variation occurs when a single nucleotide, such as an A, replaces one of the other three nucleotide letters: C, G, or T.

Think of mutations in enzymes as breaks that affect the ability of the enzyme to do its job. Homozygous (++) mutations are ones where both copies of the gene are affected and heterozygous (+-) mutations are the ones where only one copy of the gene is affected. Each of us has two copies of each gene that we inherit from each parent. Some mutations speed up the activity of the enzyme (e.g. CBS upregulation) whereas others slow them down considerably (e.g. MTHFr C677T and A1298C, COMT mutations).

COMT V158M, H62H, 61 (catechol-O-methyltransferase):

A primary function of this gene is to help to break down dopamine. Dopamine is a neurotransmitter that is recognized for its role in attention, as well as reward seeking behavior. Dopamine helps to cause pleasurable feelings that aid in reinforcing positive behaviors and motivating individuals to function in certain reward gaining activities. COMT is also involved in the breakdown of another neurotransmitter, norepinephrine. The balance between norepinephrine levels and dopamine levels has been implicated in ADD/ADHD; in addition, dopamine levels are important in conditions such as Parkinson's disease. COMT is also involved in the proper processing of estrogen in the body. Sensitivity to pain has recently been found to be correlated with COMT activity, such that COMT + + individuals may be more sensitive to pain.

VDR/Taq and VDR/Fok (vitamin D receptor):

The panel looks at more than one portion of the vitamin D receptor, the Taq as well as the Fok sites. While the Fok change has been related to blood sugar regulation, changes at Taq can affect dopamine levels. For this reason it is important to look at the composite of the COMT and VDR/Taq status and make supplement suggestions based on the combined results at these two sites. The focus on changes in the Fok portion of the VDR is in regard to supplements that support the pancreas and aid in

keeping blood sugar in the normal healthy range.

MAO A R297R (monamine oxidase A):

MaoA is involved in the breakdown of serotonin in the body. Like dopamine, serotonin is another neurotransmitter in the body. It is involved with mood, and imbalances in serotonin levels have been associated with depression, aggression, anxiety and OCD behavior. Since Mao A is inherited with the X chromosome and is considered a dependent trait it may not show standard inheritance characteristics in males. Since the X chromosome in males can only come from the mother, this means that the fathers Mao A mutations (or lack there of) does not play a role in their son's Mao A status. For females, since one X chromosome is inherited from each parent, the genetics tend to reflect the Mao A status of both parents.

ACAT 102 (acetyl coenzyme A acetyltransferase):

ACAT plays a role in cholesterol and other lipid balance in the body, helping to prevent the accumulation of excess cholesterol in certain parts of the cells in the body. ACAT is also involved in energy generation in the body. IT is involved in helping to allow protein, fats and carbohydrates from food to be converted into an energy form that can be used by your body. In addition, lack of ACAT may also cause a depletion of B12, which is needed for the long route around the methylation cycle.

ACE (angiotensin converting enzyme):

Changes can occur that affect the activity of the ACE gene that can lead to elevated blood pressure. In animal studies imbalances in this pathway were also correlated with increased anxiety and decreases in learning and memory. Increased ACE activity can also throw off the essential mineral balance in the your system due to decreased excretion of sodium in the urine and increased excretion of potassium in the urine. This reaction is also tied to the stress response such that situations of chronic stress can result in additional sodium retention and increased potassium excretion. This excess potassium is excreted provided that the kidneys are functioning properly. In the event that kidney function is compromised, it can lead to the retention of potassium in the body. ACE is a deletion, it is not a SNP. As a consequence it does not associate in the same manner that the other single nucleotide polymorphisms (SNP) on this panel do, so the inheritance pattern of the ACE deletion may not distribute in the same manner as single base changes.

MTHFR A1298C, C677T, 3 (methylenetetrahydrofolate reductase):

The MTHFR gene product is at a critical point in the methylation cycle. It helps to pull homocysteine into the cycle, serving to aid in keeping the levels in a normal healthy range. Several mutations in the MTHFR gene have been well characterized as increasing the risk of heart disease, as well as cancer, and may play a role in the level of the neurotransmitters serotonin and dopamine.

MTR A2756G/MTRR A66G, H595Y, K350A, R415T, S257T, 11 (methionine synthase/ methionine synthase reductase):

These two gene products work together to regenerate and utilize B12 for the critical long way around the methylation pathway, helping to convert homocysteine to methionine. High levels of homocysteine have been implicated as risk factors in a number of health conditions including heart disease as well as Alzheimer's disease. As is the case for COMT and VDR Bsm/Taq, the MTR and MTRR composite status is also important. Mutations in MTR can increase the activity of this gene product so that it leads to a

greater need for B12 as the enzyme is using up B12 at a faster rate. The MTRR helps to recycle B12 for use by the MTR. Mutations that affect its activity would also suggest a greater need for B12.

BHMT 1,2,4,8 (betaine homocysteine methyltransferase):

The product of this gene is central to the 'short cut' through the methylation cycle, again helping to convert homocysteine to methionine. The activity of this gene product can be affected by stress, by cortisol levels and may play a role in ADD/ADHD by affecting norepinephrine levels.

AHCY 1,2,19 (S adenosylhomocysteine hydrolase):

The various mutations in AHCY may affect levels of homocysteine as well as ammonia in the body.

CBS C699T, A360A (cystathionine-beta-synthase):

The CBS enzyme basically acts as a gate between homocysteine and the downstream portion of the pathway that generates ammonia in the body. The types of CBS mutations that are identified on this SNP panel cause this "CBS gate" to be left open, this 'open gate' is not a neutral situation. The 'open gate' can allow support that is added for the rest of the methylation pathway to be depleted, including any B12 that is used to address MTR and MTRR mutations. While there are some positive end products that are generated via the downstream portion of the pathway such as glutathione and taurine, there are also negative byproducts such as excess ammonia and sulfites. By virtue of increased CBS activity, these sulfur groups that were complexed as part of the methylation cycle can now be released into the system as sulfites which are toxic to the body and put an additional burden on the SUOX gene product.

SHMT C1420T (serine hydroxymethyltransferase):

This gene product helps to shift the emphasis of the methylation cycle toward the building blocks needed for new DNA synthesis and away from the processing of homocysteine to methionine. While DNA building blocks are important, mutations which affect the ability to regulate this gene product and interfere with the delicate balance of the methylation cycle may cause accumulations in homocysteine as well as imbalances in other intermediates in the body.

NOS D298E (nitric oxide synthase):

The NOS enzyme plays a role in ammonia detoxification as part of the urea cycle. Individuals who are NOS + + have reduced activity of this enzyme. NOS mutations can have additive effects with CBS up regulations due to the increased ammonia that is generated by the CBS up regulations.

SUOX S370S (sulfite oxidase):

This gene product helps to detoxify sulfites in the body. Sulfites are generated as a natural byproduct of the methylation cycle as well as ingested from foods we eat. Sulfites are sulfur based preservatives that are used to prevent or reduce discoloration of light-colored fruits and vegetables, prevent black spots on shrimp and lobster, inhibit the growth of microorganisms in fermented foods such as wine, condition dough, and maintain the stability and potency of certain medications.

Sulfites can also be used to bleach food starches, to prevent rust and scale in boiler water that is used to steam food, and even in the production of cellophane for food packaging. The Food and Drug Administration estimates that one out of a hundred people is sulfite-sensitive, and five percent of those also suffer from asthma.

A person can develop sulfite sensitivity at any point in life. Because many reactions have been reported, the FDA requires the presence of sulfites in processed foods to be declared on the label. Scientists have not pinpointed the smallest concentration of sulfites needed to trigger a reaction in a sulfite-sensitive person.

Difficulty in breathing is the most common symptom reported by sulfite-sensitive people. Sulfites give off the gas sulfur dioxide, which can cause irritation in the lungs, and cause a severe asthma attack for those who suffer from asthma. Responses in the sulfite-sensitive person can vary. Sulfites can cause chest tightness, nausea, hives and in rare cases more severe allergic reactions. Mutations in SUOX may be a risk factor for certain types of cancer, including leukemia.

- Review Glossary for abbreviations and FAQ

WEEK 9

Days 57 - 62: Reflect, Regroup, and Review

- Spend some time today watching the “Nutrigenomics” DVD set that came with your test kit.
- Take a deep breath and regroup. Revisit DAY 7, “Visualize Recovery”
- Go to the “Positive Feedback” Forum and read.

Visualize Recovery

Please take some time and think about or make a list of what recovery means to you and those you love. Take a deep breath. Relax. Close your eyes. Visualize yourself /your recovered child.

What does your recovery look like?

What behaviors/symptoms are gone?

What positive behaviors have taken over?

What academic gains have you achieved?

What are things you can do with recovery that you cannot do now?

What does vibrant health look like?

Envision the life changes for you and your entire family.

- Continue adding in Step 1 supports and any additions/changes recommended on testing so far.
- If you are seeing signs of detox, don't forget to take a UTM .

DVD Resources

Take time to watch some more of the DVDs this week. The suggested order is as follows:

- "Neurological Inflammation with Dr. Amy"
- "Putting It all Together"
- "Multifactorial Components"
- "Autism Educational Starter Packet"
- "Stress"

WEEK 10**Days 63 - 70: Prioritizing and Supporting Mutations**

The following is a suggested order to support Nutrigenomic mutations in conjunction with your physician.

First Priority Mutations

In general, we can think about addressing the SHMT and ACAT first, then the CBS and then the rest of methylation cycle support.

SHMT/ACAT

The reason you want to look at SHMT and ACAT support as starting points if they are issues is that we tend to see more dysbiotic and imbalanced flora associated with these mutations. Until we get the flora in better balance we risk the problem of retention of toxic metals by the microbes. So, if we have an MTHFR A1298C mutation and the BH4 and aluminum issues described above, we may have trouble moving ahead with this mutation and gaining on the aluminum excretion and mitochondrial issues if we have not addressed the general gut environment by looking at SHMT and ACAT support. It is fine to layer in some B12 support early on and then later look at really supporting B12 in a big way after you have addressed some of these other mutations. You can look at the B12 gum, or B12 patch or the oral spray at any point, and then layer in the much larger amounts of B12 (multiple routes/multiple sources) once you have dealt with some of the other mutations such as the SHMT, ACAT and CBS. Remember that the level of B12 in the system can also affect the gut environment. So if there are a number of MTR/MTRR mutations that higher doses of B12, gradually layered in over time are important for the gut environment as well as for support for the methylation cycle.

Consider addressing these first if you/your child has these mutations or any of the following test results:

- Elevated Iron on a UEE test
- SCFA Imbalances on a CSA test
- Suberic, beta hydroxyl methylglutaric acid, or other ketone and fatty acid metabolite
- Imbalances on a MAP or OAT test
- Severe gut issues
- Muscle weakness (which can be related to aluminum retention)

CBS

- Start the ammonia program for CBS.

The full ammonia protocol is listed in the Basics forum, post entitled *Ammonia Protocol CBS*. The Ammonia/CBS Protocol is a set of supplement suggestions designed to address biochemical issues associated with CBS + individuals. The level of support is determined by your individual mutations as detailed in the Methylation Pathway Analysis and Urine Amino Acid biochemical test results.

Closing Remarks

I like the idea of looking for the next mile marker along the way rather than simply concentrating on the finish line. I think that sometimes it is easy to feel discouraged that you haven't reached the finish line yet, but if we can all concentrate on how far we have come, rather than how far is left to go, I believe that it makes the journey more enjoyable and easier to travel. It is another way of living in the moment, rather than always living for the future and the "what ifs". When I used to do a lot more counseling in my private practice I would tell people that I wanted them to get rid of the "would haves", "could haves" and "what ifs". What is done is done, where we are is where we are. Live in the moment, concentrate on the moment, be the best you can be each and every day and you will not have regrets. We do need to learn from the past and look toward the future, but that is different than living with regrets or living for the future. I like the idea of focusing on the mile markers as we pass them, and trying to appreciate and enjoy the run along the way!

I hope that this workbook will be helpful in getting you started.

With Love, Hope and a Hug,

Dr.Amy

Glossary & FAQ

Glossary

A more comprehensive glossary can be found in “Puzzle of Autism,” “Pathways to Recovery” and on the Discussion Forum.

Chelation : to remove a heavy metal (i.e. lead or mercury) from the body by means of an agent such as EDTA.

Creatinine: Generally, the darker the urine sample, the higher the creatinine. This is when we believe the body is detoxing viruses. When creatinine drops, the urine becomes lighter and that is when the body is eliminating metals. Aluminum excretion can be happening despite the creatinine level. Some also detox heavy metals at high creatinine. The higher the creatinine, the more stress is placed on the kidneys.

Detox: The process of ridding the body of viruses, bacteria and metals. Detox behaviors range from lethargy to hyperactivity and inability to sleep. Also cold symptoms and fevers are common.

CSA: Comprehensive stool analysis. Identifies bacteria and good flora in the gut. Also measures PH levels and sIGA, an inflammatory bowel marker.

Enzyme: Any of numerous proteins or conjugated proteins produced by living organisms and functioning as specialized catalysts for biochemical reactions. Enzymes help reactions happen faster than they would if the enzyme were not present.

Escorts: EDTA, Malic Acid, and Horsetail Grass are frequently referred to as the “escorts” because they escort the metals out of the body.

Excitotoxin: A toxic molecule that stimulates nerve cells so much that they are damaged or killed.

FM: Fecal Metals Test. Shows what metals are being excreted via stool (processed by liver).

MAP: Metabolic Analysis Profile- Determines current level of methylation supports and gives a sense of gut microbes and dopamine balance in respect to norepinephrine. Doing a MAP and UAA at the same time if optimal as the combination gives Dr. Amy the best look at what is happening within the body.

Methyl group: A methyl group is simply a single carbon atom bonded to 3 hydrogen atoms (CH₃).

Methylation: Transfer of methyl groups from one chemical to another is called methylation. Essentially any chemical compound that has a methyl group as part of its chemical structure is capable of donating it to another chemical that needs it. The chemical that receives the methyl group is “methylated”. This process of moving methyl groups around is necessary for the functioning of several biochemical reactions such as DNA and RNA synthesis, creatinine generation, immune responses involved in silencing viruses etc. Filling in the methylation cycle is critical for improved health and ability to excrete toxins.

MPA: Methylation Pathway Analysis. Test to determine genetic mutations to be addressed and includes lists of supplementation suggested for each mutation.

Myelination: The wrapping around nerves. The change or maturation of certain nerve cells whereby a layer of myelin forms around the axons which allows the nerve impulses to travel faster.

OCD: Obsessive Compulsive Disorder

Organ Supports: for liver, kidneys, pancreas and adrenals. Supplement lists found on Discussion Forum, Basics Section and Addendum A.

PM: Private message on the discussion group. At the bottom left of each post is a button marked “PM” which allows you to send a private message to the author of that post. To view PMs sent to you, go to the top of the page, look below Dr. Amy’s Discussion Group and you’ll find “You have X new messages. Click there and your private mailbox will open.

SNP: (Pronounced snip) is a small genetic variation within a person’s DNA sequence

UAA: Urine Amino Acids test. Shows levels of amino acids—especially important for identifying GABA/ glutamate. When done along with a MAP, Dr. Amy gets the most information to work with.

UTM: Urine Toxic Metals test to see which metals are being detoxed and in what quantity, Also reports Creatinine (processed through the kidneys).

UTM & UEE: Urine Toxic Metals test AND Urine Essential Elements—measuring mineral levels.

Frequently Asked Questions

Q: Do I have to use all the supplements in all the lists?

A: No. Lists are provided to give you options. It is important to cross-reference the lists so you can see which supplements work in multiple areas. If you are uncomfortable with a particular supplement, don’t use it---choose another from the list.

Q: Why do all the HHI RNAs list the same ingredients?

A: The specifics of each isolated RNA product are so complex and lengthy that they cannot be listed on the small bottles. Therefore each RNA product is labeled with the proprietary blend statement.

Q: How do I know if it’s detox?

A: When in doubt its best to run a UTM or FM. Detox has many faces. It may be an increase in hyperactivity, increased stimming, recurrence of old obsessions, increases in OCD behaviors, rashes, fever, cold like symptoms, increased difficulty with going to sleep and many other issues. Some may

even become lethargic because they just don't feel well.

Q: What do I do if detox gets to be more than I can handle?

A: Increase the calming supplements and RNAs, pull out or reduce the detoxing supplement(s) until detox subsides to a tolerable level or until you are back to a calm place.

Q: Do I still give supplements when my child is sick? Which ones?

A: This is a personal choice. Increasing the calming supplements and RNAs may be helpful. You may choose to continue the detox provokers at the same or lower dose, or stop them completely. There is no magic answer for this one. You are the expert on your child and are in the best position to determine which approach is most tolerable for your situation.

Q: Will Dr. Amy answer my question on the Discussion Forum?

A: Most questions will be answered by "Veteran" members. A few posts are selected each week, at the discretion of the moderator, and sent to Dr Amy.

Q: How and when do I contact the office?

A: For office related questions please contact the office, you will find addresses on the contact page at the beginning of this workbook for the questions regarding the protocol itself and all other questions please use the Discussion group.

Q: What are the sources of excitotoxins?

A: List of Excitotoxins

monosodium glutamate
seasoning(s)

NutraSweet/aspartame
caseinate

malted barely flour

soy protein

glutamate

seasoned salt

hydrolyzed protein

disodium guanylate

malt extract

soy protein concentrate

natural flavor(s)

dough conditioners

hydrolyzed vegetable protein

disodium inosinate

malt flavoring(s)

soy protein isolate

natural flavoring(s)

yeast extract

hydrolyzed plant protein

disodium caseinate

malted barley/barley malt

soy extract

maltodextrin

soy sauce

hydrolyzed oat flour

autolyzed yeast

malted anything

autolyzed yeast extract

(cont.)

carrageenan
autolyzed anything
hydrolyze anything
bouillon
texture protein
broth
gelatin
stock
sodium caseinate
soup base
guar gum

vegetable gum
spice(s)
komb extract
smoke flavoring(s)
ajinomoto
calcium caseinate
whey protein concentrate
plant protein extract l-cysteine
chicken/pork/beef “flavoring”
whey protein
chicken/pork/beef “base”
whey protein isolate

Sources of MSG

Definite Sources of MSG
Hydrolyzed Protein or Hydrolyzed Oat Flour
Sodium Caseinate or Calcium Caseinate
Autolyzed Yeast or Yeast Extract
Gelatin
Glutamic Acid
Monosodium Glutamate

Possible Sources of MSG

Textured Protein
Carrageenan or Vegetable Gum
Seasonings or Spices
Flavorings or Natural Flavorings
Chicken, Beef, Pork, Smoke Flavorings
Bouillon, Broth, or Stock
Barley Malt, Malt Extract, Malt Flavoring
Whey Protein, Whey Protein Isolate or Concentrate
Soy Protein, Soy Protein Isolate or Concentrate
Soy Sauce or Extract

For more information on excitotoxins please read the **“Puzzle of Autism”** book.