

Congratulations and thank you for taking the first step down the road of biomedical treatment. I appreciate that you have chosen me to help support you and your child.

As this may be a new treatment for your child, I would like to outline that some of the facets of biomedical care, challenges that *may* occur and some achievements that you can expect. I would also like to emphasize that this is not a “quick fix” and this is an ongoing process. Children who undergo long term biomedical treatment generally experience high levels of success and that is my ultimate goal in treating your child. We are a team!

Biomedical Program Outline:

- Initial 60 – 90 minute assessment and individualized testing (see page 5 & 6)
- Supplements including: vitamins, minerals, amino acids, botanical medicines, probiotics, essential fatty acids, phospholipids and digestive enzymes
- Dietary intervention is a crucial part of biomedical treatment success
- Follow up visits every 4-12 weeks based on re-assessment and protocol outcomes. Please note that follow up appointments are essential to treatment success
- ***Please note that B12 injections therapy requires follow up visits every 3 months in addition to supplementation with a B complex that contains folate or methyl folate and B6***

Challenges often arise as we are trying to “repair” your child’s body and brain in order to recover as many neurotypical skills as possible. Challenges are short term and managed acutely as needed. These challenges will vary in terms of severity, and will be handled accordingly:

- Sleep changes
- Change in digestion and/or appetite
- Skin changes
- Hyperactivity and/or irritability

Biomedical Achievements frequently include:

- Enhancement in receptive, expressive and spontaneous language development
- Increase in vocabulary, language complexity and appropriate use of language
- Increased social awareness, interaction and appropriate play
- Cognition, understanding and learning
- Eye contact and responsiveness
- Improvements in focus, attention and impulsivity
- Normalized behaviors and interaction including self-stimulating, self-injurious, tics and aggression
- Understanding and feeling emotions, affection or increased tolerance to touch
- Improvements in sleep, skin, digestive and immune health

One of the reasons biomedical treatment is so successful for children diagnosed with autism, PDD, AD/HD, TS and OCD and other developmental concerns, is that treatment is **individualized**. Please resist the urge to treat your child on your own. Biomedical is a system approach to addressing chronic disorders that impair development. It takes a competent, well-trained health care provider to identify underlying weaknesses, treat them and help children recover as many skills as possible. When something is going on with your car, you seek out expert advice from a mechanic. If something needs to be surgically repaired, a surgeon is called on to use their expert skills.

My goal is to **work together to help your child reach their potential** and an important part of treatment success is my ability to assess benefit. If diet, supplements or other biomedical interventions are being added at different times, it becomes very difficult to “map” out your child’s biochemistry, physiology and individual needs.

Biomedical treatment is one of the most powerful ways to recover your child. Recovery is considered partial or complete healing resulting dramatic benefits including age appropriate language, social and cognitive function. It takes years to heal and repair a child’s brain. It is important to budget for ongoing biomedical treatment in order to help your child reach their potential.

Your child has a chronic neurological and immunological disorder that is not going away; unless you do something about it. **This is an extremely difficult and long term process**. Your child will experience digestive disturbances, skin issues, discomfort, sleep issues and behavioral reactions

as his or her brain heals. Being a “biomed parent” means supporting your child through these changes so they can reach their maximum development potential.

Most people stop biomedical care for the very reason they should continue. When we move inflammation from the brain to the liver and out through the digestive tract, your child will have a healing crisis. When treatments detoxify and modulate immune function, there will be reactions. **There is nothing you can do to hurt your child doing biomedical and as your child’s doctor, there is nothing that I will ever recommend that has toxic side effects that could damage them.** Your child will, however, experience temporary discomfort. If this were an easy process, everyone would do it. Your job is to manage your child through each healing crisis as biomedical treatment addresses problems that once repaired, will change their body forever.

Treatment is successful for the majority of children diagnosed with a developmental disorder. I look forward to working with you to help in your child’s recovery.

DEVELOPMENTAL DISORDERS ARE TREATABLE. Your journey to recover as many skills as possible for your child begins today. It is my promise to every parent and child that I will work as hard as possible to help in the recovery process.

Yours in good health,

Dr. Sonya Doherty, ND and Dr. Danielle O’Connor, ND
Doctors of Naturopathic Medicine

Parent's Survival Guide to Biomedical Treatment

****Please take the time to look through this entire handbook. There is information that will help explain treatment suggestions and outline the commitment needed for biomedical treatment and long term success!****

Introduction to Biomedical Treatment:

This packet is an introduction to what we need to know to help your child recover. Autism, Asperger's, PDD, ADD/HD, TS, OCD, anxiety and other developmental concerns are chronic disorders. Recovery is the term biomedical doctors use to describe complete or partial developmental gains achieved through treatment. Developmental disorders have their roots in inflammation and immune dysregulation. The analogy I like to use for biomedical treatment is "being hit by a bus". You can recover from "being hit by a bus" but you have to identify what parts of the body were hurt, how to repair them and then begin the road to recovery. Biomedical treatment is "rehabilitation" for the cells and tissues traumatized by weaknesses in a child's body in addition to inflammation, immune dysregulation and environmental toxins that are the "bus" that caused the problems to begin with.

Common underlying issues (what we need to know about your child):

- YEAST
- PANDAS - STREP
- CLOSTRIDIA
- VIRUSES
- HEAVY METALS
- ENVIRONMENTAL TOXINS
- MITOCHONDRIAL WEAKNESS
- DIGESTIVE ISSUES LIKE CONSTIPATION, DIARRHEA AND/OR LEAKY GUT
- METHYLATION DEFECTS
- DETOXIFICATION IMPAIRMENTS
- NUTRIENT DEFICIENCIES INCLUDING ESSENTIAL FATS AND B VITAMINS
- PROBLEMS WITH CONVERTING NUTRIENTS TO ACTIVE FORM
- **IMMUNOEXCITOTOXICITY / BRAIN INFLAMMATION / EXCESS GLUTAMATE**
- AUTOIMMUNITY
- HISTAMINE INTOLERANCE
- FOOD ALLERGIES / SENSITIVITIES
- LYME

Laboratory Testing:

Assessment provides many clues to what is going on with your child but individualized treatment requires testing. Most commonly recommended tests for biomedical treatment include:

- **Urinary Organic Acid Test – www.greatplainslaboratory.com**
 - This is the most comprehensive evaluation of your child's biochemistry, physiological and metabolic function. Yeast, clostridia, gut health, detoxification impairment, glutathione status, essential fatty acid function and nutrient levels will all be assessed in this 72 test evaluation.

- **Food Allergy Testing – www.rmalab.ca**
 - This test evaluates IgG food allergy to 96 of the most common food allergens including dairy, gluten, soy, corn and egg.

- **Heavy Metal Analysis - www.doctorsdata.com**
 - These tests evaluate heavy metal load through assessment of hair, urine or stool.

- **Yeast Stool Profile – www.doctorsdata.com**
 - This test evaluates 48 strains of yeast and which botanicals will be effective in eradication.

- **Microbial Stool Profile – www.doctorsdata.com**
 - This test includes yeast and bacterial assessment as well as information on eradication.

- **Comprehensive Digestive Stool Analysis and Parasitology x 3 – www.doctorsdata.com**
- This is the most comprehensive evaluation of the digestive system available. It evaluates yeast, bacteria, parasites as well as gut inflammation, enzyme function and sensitivity testing which tells you how to eradicate microbes that are negatively impacting bowel health and development.
- **Vitamin D Spot – www.doctorsdata.com**
- Vitamin D is crucial for development. This is a finger prick test to evaluate vitamin D status.

*The above testing is **not** covered through OHIP but may be covered under extended health benefits OR health spending accounts. Other important tests can be requisitioned through your child's MD or specialist.*

Getting Started Information:

Great Books to learn more about biomedical treatment and research:

- Pathways to Recovery – Amy Yasko, Ph.D
- The Autism Revolution – Dr. Martha Herbert, PhD, MD
- The Autism Book – Dr. Sears, MD
- Healing our Autistic Children – Dr. Julie A. Buckley, MD
- Changing the Course of Autism – Dr. Bryan Jepson, MD
- Children with Starving Brains – Dr. Jaqueline McCandless, MD
- Healing the New Childhood Epidemics, Autism, ADHD, Asthma and Allergies – Dr. Kenneth Bock, MD
- The Devil in the Milk – Keith Woodford
- Wheat Belly – William Davis, MD
- Gut and Psychology Syndrome - Dr. Natasha Campbell-McBride
- Grain Brain – Dr. David Perlmutter, MD
- The Omnivore's Dilemma – Michael Pollan

Websites:

- www.treatautism.ca, www.treatadhd.ca, www.treatocd.ca, www.treattourettes.ca
- www.autism.com
- www.tacanow.com
- www.autismcanada.org

Documentaries - these can help provide more information on the importance of good quality food

- Food Inc.
- Food Matters
- Hungry For Change
- Forks Over Knives
- Genetic Roulette
- Beef Inc.
- Supersize Me
- David vs. Monsanto
- Fed Up
- Ted Talks:
- Robyn O'Brien – Real Food
- Temple Grandin – The world needs people with autism

You Tube

- Nutrition and Behaviour – Dr. Russell Blaylock, MD
- Tastes that Kill – Dr. Russell Blaylock, MD

Biomedical Dietary Intervention:

Picture a flood in your basement. Water is running down the stairs and the water level is rising. This is a great analogy for a developmental issue. Food is the water running down the stairs. Food makes up a lot of the fluid flooding the basement. **Some foods = inflammation and immune dysregulation.** Food is the KEY to your child's recovery.

Step by step guide to transitioning your child's diet

1. Limit dairy
2. Remove dairy
3. Limit grains
4. Remove grains
5. Limit potato and corn
6. Remove potato and corn
7. Limit beans, lentils
8. Remove beans, lentils

****Note that this is the absolute best diet for children with developmental concerns***

DAIRY: The first step of biomedical diet intervention includes removing dairy from your child's diet. It is important to remove 100% in order to support gut healing and developmental gain. Dairy is the **NUMBER #1 FOOD ALLERGY IN THE WORLD.** Remove all sources of lactose, whey, casein and modified milk ingredients.

Dairy Alternatives include:

- Unsweetened sunflower milk, almond milk, coconut milk, flax milk, hemp milk
- Nondairy ice cream / some sorbets – dairy and gluten free (not grain free)
- Dairy free butter / alternative cheese products
- Coconut yogurt / almond yogurt

❖ Ensure your non-dairy options DO NOT CONTAIN CARRAGEENAN

GLUTEN: The next step is removing all sources of gluten from your child’s diet. Many parents ask if it is necessary to remove all sources of gluten (and dairy) because it is so hard to do 100% of the time. The answer is **YES!** It is very important to remove dairy and gluten 100% from your child’s diet because food creates a “flood” of inflammation in your child’s body. In order to clean up and repair damage caused by this “flood”, the foods need to be completely removed. In my practice, children who are completely dairy and gluten free experience more benefit from treatment which translates into social, language and cognitive developmental gains. For more information on how “scary” our modern day gluten has become, consider reading Dr. William Davis’s book – Wheat Belly.

Limiting carbohydrates: The digestive tract is filled with trillions of microbes that work together to breakdown proteins, absorb and convert vitamins and minerals, promote immune function and regulate inflammation. Children with digestive problems, who have had multiple rounds of antibiotics (including during their mother’s labor and delivery) and/or were delivered via C-section are at risk for **MICROBIAL OVERGROWTH**. “Bad” bacteria, yeast and/or parasites can disrupt the proper balance of microbes in the gut and contribute to developmental delay. These abnormal or dysbiotic microbes LOVE carbohydrates and cause children to crave breads, sweet foods, fruits, crackers etc. For more information about your child’s MICROBIOME, visit www.naturallyhealthykids.ca and read the section on digestive health.

❖ **THE MOST RECENT RESEARCH REGARDING DEVELOPMENTAL DISORDERS INDICATED THAT MOST CHILDREN BENEFIT MOST FROM A DIET WITH NO COMPLEX CARBOHYDRATES (GRAIN FREE)**

- ❖ *Please note that going GFCF is very important but keep in mind it is important to limit carbohydrates and not replace all of the gluten products with other grains. Gluten free products are often higher in sugar and your child needs **MORE NUTRIENTS** and less overall carbohydrates.*

Protein: Serotonin, dopamine, GABA and other important brain chemicals (neurotransmitters) are made from protein. Many children with autism suffer from a lack of protein in their diet. Protein with every meal and snack is very important for BDI.

Fiber is an essential part of gut healing and biomedical treatment:

- Binds inflammation to be removed by the gut
- Binds heavy metals, pesticides and other harmful chemicals
- Regulates digestion and helps to treat constipation, diarrhea, bloating etc.
- Ground flax seeds

Nutrient Density: Studies have shown that increasing the amount of vitamins, minerals, antioxidants and nutrients in general can positively impact development in children with ASD and other developmental disorders.

List of high nutrient density foods:

- Berries – blueberries, raspberries, blackberries
- Free range organic chicken and turkey
- Nut butters including almond and hazelnut
- Green leafy vegetables including spinach, swiss chard, kale, broccoli
- Beans and lentils
- Flax seeds, chia seeds, hempo seeds

Cleaning up your child's diet and environment:

GFCF, low carbohydrate intake and nutrient density are key factors to promoting development in children with autism and other developmental issues. The research overwhelmingly identifies INFLAMMATION as a underlying causative and contributing factor to ASD and AD/HD. Cleaning up your child's diet is an ongoing commitment and other important strategies include:

- Removing processed, pre-packaged and "fast foods"
- Strictly limit intake of sugar by eliminating juice, candy and high glycemic (very sweet) fruits such as oranges and bananas
- Dilute juice – ¼ juice, ¾ water
- Replace peanut butter with almond, cashew or hazelnut butter (peanuts = inflammation)
- Eliminate refined sugar sources such as cookies, muffins, croissants, most crackers
- Consider free range organic meat and eggs because they decrease your child's detoxification burden
- Ensure adequate water intake by giving your child ½ their body weight in ounces daily

Example: 40 lb. child would need a minimum of 20 oz. of water daily

Healthy Cooking Tips:

- Cook with extra virgin olive oil on low to medium heat – adding water will minimize production of free radicals which cause oxidative stress (a key factor in developmental delay)
- Anything fried creates TRANS fats that cause oxidative stress – cooking oils to the point of cracking and snapping creates TRANS fats as well
- DO NOT MICROWAVE PLASTIC and consider minimizing overall use of microwave
- Use bisphenol A free plastics for drinks and storage
- Smoothies are a great way to get in lots of nutrients (and supplements)
- Read labels – if you don't recognize a word, it is a chemical that is tough to break down

Castor oil Pack: this easy treatment is extremely effective for decreasing inflammation in the digestive tract. Castor oil packs help to detoxify the liver and remove harmful toxins safely and effectively from your child's body.

Epsom salt baths daily: safe, easy way to detoxify the body, add ¼ cup to the bath (safe to ingest)

Cleaning Products: these are very strong and harmful chemicals that increase your child's toxic load. Clean out all your old cleaners and replace them. Public health now recommends couples having fertility issues should remove their toxic cleaners. Children with developmental issues need to be as protected as possible from environmental exposures.

Personal Care Products: Most shampoos, perfumes, deodorants, creams etc. have toxins in them called phthalates. Phthalates are extremely toxic and we recommend choosing these products carefully. The easiest way to begin is to remove products that have a strong scent like perfume, cologne, strong smelling deodorant and body sprays and hair products. Shop the natural care product section of your grocery store or health food store and begin to educate yourself on the harmful effects of these products on your child's development.

Pesticides - have been linked to autism, ADHD and other developmental issues.

HIGHEST NUMBER OF PESTICIDES:	
Celery	Peaches
Strawberries	Apples
Blueberries	Nectarines
Bell peppers	Spinach
Kale	Cherries
Grapes	Potatoes

LOWEST NUMBER OF PESTICIDES:	
Onions	Avocado
Sweet corn	Pineapple
Mango	Sweet peas
Kiwi	Cabbage
Eggplant	Cantaloupe
Watermelon	Grapefruit
Sweet potatoes	Honeydew melon

Supplements – How do I get this stuff in?

Trying to get your child to take nutritional supplements can be very stressful at first for both parents and children. Children with developmental concerns may be required to take anywhere from 6-20 different nutritional supplements each day.

Many parents struggle with getting supplements into their children. Here is something to consider; if a child had meningitis, they would be given lifesaving medicine. If a child had diabetes, they would need insulin to survive. Developmental issues can be **DRAMATICALLY** improved through biomedical treatment but the supplements have to be consistently given to kids in order to help them make significant gains.

- **Take a no-nonsense approach:** Give supplements with the same level of intensity that you use to give them life-saving medication. Your child needs these supplements to support their brain, immune system, detoxification pathways and methylation cycles. Your child can sense when you are serious about giving supplements
- **Choose the best method to administer your child's supplements:**
 - Mix with a small amount of juice and use a medicine syringe to squirt into the mouth
 - Mix with applesauce, maple syrup, jam or honey (especially MANUKA honey) or fruit purees
 - Mix in a berry smoothie (use a small amount to ensure the medicine is not too diluted)
 - Mix in organic sugar free peanut butter or other nut butters
 - Mix into hummus or pasta sauce
- **Use the concept "FIRST and THEN":** This is a critical concept to ensure compliance. If your child is in an IBI or ABA program, this would be a good place to learn this concept. Otherwise, parents can reinforce this concept by repeating it in everyday life experiences. This strategy uses an expectation followed by something preferred

What is Methylation?

Increasing evidence is revealing the role of methylation in the interaction of environmental factors with genetic expression in playing a role in developmental issues like autism and ADHD. Methylation has also been shown to impact inflammation after a child leaves the womb. We know that autism and ADHD are linked to inflammation. Now we are discovering that inflammation, autism and ADHD are linked to impaired methylation.

Methylation is responsible for:

- RNA and DNA (genetic material responsible for every function in the body)
- Immune system regulation
- Detoxification of heavy metals and other harmful substances
- Making **GLUTATHIONE** (the body's main detoxification enzyme responsible for removing mercury, lead, cadmium, arsenic, nickel, tin, aluminum and antimony)
- Production and function of proteins
- Regulating inflammation

What connects B12, methylation, glutathione and development?

Dr. S. Jill James (who has recently received a NIH - National Institute of Health - grant for her research) has shown that children with ASD have impaired methylation and decreased levels of glutathione. Supporting and/or repairing the underlying impairment and deficiency translates into **increased social, cognitive and language development**. Dr. S. Jill James has also shown that children with ASD have 80% less glutathione in their cells and that 90% of children have defects in their methylation. This means that children with autism cannot effectively fuel the brain and detoxify heavy metals and other harmful substances from their system.

The brain is the only part of the body that has depends entirely on B12 to detoxify. As the brain is over-burdened with toxic substances, the "wheels" of methylation slow, severely impacting development. B12 works closely with folic acid. A precursor folic acid molecule must interact with the enzyme MTHFR (methylenetetrahydrofolic acid) to become 5-methyltetrahydrofolic acid (5-MTHF). **5-MTHF** gives the methyl group (the "M" part) to B12 so it can become methyl-B12. Unfortunately, many children have a defect in this enzyme. In a recent study by Dr. S. Jill James, 90% of children with ASD were found to have methylation defects.

What is the connection between B12 and ADHD?

Dr. Richard Deth is a Ph. D and neuropharmacologist at the Northeastern University. His area of research is focused on impaired methylation and oxidative stress in neurological and neuropsychiatric disorders, including autism, ADHD, schizophrenia, and Alzheimer's disease. Dr. Deth discovered the link between dopamine, methylation and attention which has helped Defeat Autism Now doctors understand why B12 is crucial to treatment of ADHD. Children with ADHD have difficulty bring methyl inside cells to support methylation and therefore development - especially in the areas of attention and focus.

What are the benefits of MB12 treatment?

Enhancement in executive function:

- Awareness
- Cognition – learning, processing and relaying information (helps reduce sensory issues)
- Appropriateness
- Eye contact
- Responsiveness
- Normalized behaviours and interaction
- Focus and attention

Promotion of speech and language:

- More attempts at making words or sounds
- Increased spontaneous language
- More complex sentences
- Increased vocabulary
- Conversational speech

Improvements in socialization, understanding and expressing emotion:

- Initiation and interactive play
- Understanding and feeling emotions
- Affection and tolerance to touch
- Boundaries and awareness of body

Undesired effects are POSITIVE / NEGATIVE. They are a good sign of B12 treatment success but can cause short term aggravation for children and parents. They are not uncommon and include:

- Hyperactivity
- Self-stimulating behaviour
- Increased mouthing of objects
- Sleep disturbances – which can be managed with other treatments
- Aggression, hitting and biting - caused by frustration due to increased awareness

❖ **POSITIVE / NEGATIVES** can be mild to severe and are considered transient which means they will pass as treatment progresses

A few important final notes on B12 therapy:

- ❖ ***MB12 is a treatment, not a cure.*** However, many children using MB12 combined with other biomedical and non-biomedical therapies make incredible developmental gains
- ❖ *Parents should understand that the **maximum results from MB12 therapy occur over years,** not months, not weeks. Initial results will be obvious within the first 3-5 week period of time; but MB12's power is in continued use*
- ❖ **In my practice, 92% of children benefit from MB12 treatment**
- ❖ *B12 therapy requires in office follow up visits every 3 months*
- ❖ *Children on B12 therapy need to be taking a B complex with folate or methyl folate and B6. This is to prevent deficiencies and ensure that long term B12 therapy is safe for your child. Unfortunately, if your child is not able to take these supplements, they are not a candidate for B12 treatment*

Parent Care:**Nutritional Support Visits:**

One of the hardest aspects of biomedical treatment is the grain free / dairy free diet. Nutritional support visits with an experienced naturopathic doctor can help if you are feeling overwhelmed or need more ideas on how to make dietary shifts more manageable. Nutritional support visits provide recipes, resources and nutritional guidance (ex. non-dairy sources of calcium, protein intake). The basic dietary intervention used to optimize your child's development may also help you manage your health concerns or optimize energy, sleep and mood.

Parent Support Visits:

Research shows that caregivers of children with developmental delays experience higher than normal levels of stress. I strongly suggest that parents consult a naturopathic doctor who focuses on supporting the stress system. Biomedical treatment has excellent success rates but relies heavily on parents and caregivers for implementation. Dietary changes and administering supplements in addition to other therapies means parents need to be at their best: physically and emotionally. Naturopathic parent support visits help you put in place supplements, dietary changes and lifestyle adjustments that improve energy, motivation, sleep and help to manage stress.