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Neurodevelopmental disorders are rising at an alarming rate.

Autism, anxiety, OCD, ODD, ADHD, SPD.... the list goes on and on. Children and families are facing a tremendous epidemic.

And while the health and well-being of our children is being significantly impacted; their quality of life, health and function can always be improved.

The purpose of this document is to help you make that improvement.

I know how time starved you are as a parent of a child with special needs.

That's why I have made this document brief and to the point.

The next five sections contain essential information I have learned as a healthcare provider over the course of my career as I have focused on improving the health and quality of life of children with neurodevelopmental challenges.

I consider this necessary information for all parents and health providers to know in order to help children experience their optimal health, function and quality of life.

Sincerely,

Isaac A. Mooberry, D.C.



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5 Things Most Doctors Won't Tell You, But You Need to Know

1. There is hope because quality of life can always be improved.

Many parents given a diagnosis of autism, ADHD, OCD, and other neurodevelopmental disorders are told that their children have a genetically based condition and that the best treatments available are those which seek to manage symptoms or modify behavior.

What this advice fails to recognize is that while there often is a genetic component, there are also frequently co-existing health conditions, which are making the condition worse; or in some cases, causing the neurodevelopmental condition in the first place.

It's not all in the Genes?

The current prevailing story is that autism, ADHD, OCD, ODD and many mental health issues as well are predominantly an issue of genetics. That our genetics are the cause of these problems and that there is little that can be done.

While the genes are indeed important in the development of certain neurodevelopmental disorders, the genetic theory as their sole cause completely ignores scientific data showing otherwise.

You see, you cannot have a genetic epidemic. It is impossible. Genes don't change that rapidly.

Even still, if genes were the primary cause, the fact that the majority of individuals with autism do not have children would suggest that the rates of autism would be on the decline or at least have leveled out. This is not the case. The rise continues and many believe that the end is not in sight.

Two of the largest studies on the incidence of autism have shown that only 50% of the over 800% increase can be attributed to better and earlier diagnosis. The authors of both studies concluded that the other 50% increase must be due to the environment.

The old model of autism, ADHD and other neurodevelopmental disorders being a purely genetic issue is quickly falling away to the rational and scientifically supported position that these disorders are largely due to environmentally induced or stimulated autoimmune responses in genetically predisposed individuals.



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Dr. Paul Hardy is a diplomate of the American Board of Medicine and the American Board of Psychiatry and Neurology. He also serves on the Panel of Professional Advisors of the Autism Society of America and is a director at the Autism Research Institute.

Dr. Hardy puts it best stating:

“After twenty years of searching for the gene, or genes, and the expenditure of untold millions of dollars, no single gene, or set of genes, has been found. Possible gene loci have been identified, but what is very clear is that autism is a polygenetic condition with the environment probably playing a significant role in the expression of genetic factors. It is no longer genes versus environment – it is genes and environment!”

These disorders primarily impact the central nervous system (brain and autonomic nervous system), gastrointestinal system, immune system, and detoxification systems.

The result is whole body dysfunction with symptoms specific to each of those systems being in a state of dysfunction. The truth is that no matter what an individual’s genetic situation and state of health, strategies and techniques can be employed that can improve their quality of life.

Depending on the stage of the disease process, when it started, and a person’s individual genetics, their recovery and healing process will vary accordingly.

Nonetheless, there is always room for improvement in quality of life.

2. Neurodevelopmental challenges involve the WHOLE body.

In order to truly understand your child’s neurodevelopmental condition, I believe it is essential to view it as a whole body disorder.

Dr. Paul Hardy is a diplomate of the American Board of Medicine and the American Board of Psychiatry and Neurology. He also serves on the Panel of Professional Advisors of the Autism Society of America and is a director at the Autism Research Institute. He has created a fantastic graphic to help depict neurodevelopmental conditions as whole-body disorders.

As you can see, the problem is a cyclic one as each system influences the other. Environmental toxins and disruptions in the gastrointestinal system, detoxification system, and immune system can all have detrimental effects on the delicate nervous system.

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Major gut dysfunction is a hallmark in a large percentage of individuals with autism, ADHD and other mental/emotional health problems. In a nutshell, problems with the gut result in a leaky gut which allows pathogens, proteins and other materials to enter the bloodstream and produce a chronic and consistent autoimmune inflammatory response. This causes brain inflammation and the resultant changes in brain structure and function.

Couple this with a compromised or injured nervous system and suboptimal detoxification systems and you have a recipe for a chronic neurodegenerative condition.

While this process of chronic cyclic dysfunction, inflammation and autoimmune responses is quite daunting, it is a process that can be halted and reversed. Many children have seen tremendous leaps in health and function even when their parents have been told that nothing could be done or their condition was incurable.

If you study the graphic above, it should become very clear what the interventions should be.

They should be those approaches, therapies and procedures aimed at supporting and strengthening the function of reparative processes of the:

- Nervous system
- Gastrointestinal system
- Immune system and
- Detoxification systems.

This approach has helped thousands of children impacted by various neurodevelopmental disorders and can lead to tremendous growth and healing by following these guidelines and the information I will be sharing throughout this document.

One concept that is extremely important to understand is that children do not just have smaller versions of an adult brain. Children's brains and nervous systems are much more vulnerable than adult brains to toxins and inflammation; which can alter the brain's healthy development.

3. There is a major link between gut health and brain health.

Dr. David Perlmutter, a leading neurologist and the author of several books, recently wrote a book called Brain Maker. This book is entirely dedicated to the link between the health of the digestive system and the health and function of the brain.

The link between the health of the digestive system and the health of nervous system is

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something that is becoming more and more studied throughout the scientific community, and for very good reason.

If your child has an unhealthy digestive system, it will have an extremely detrimental effect on their nervous system. This is particularly true for children with neurodevelopmental disorders, many of whom suffer from digestive complaints and sensitivities.

Various factors can cause the stomach and gut lining to become impaired and inflamed. This leads to a condition commonly known as 'Leaky Gut'. When a child has leaky gut syndrome, their body is no longer able to absorb nutrients in a sufficient manner. This is why in the graphic above, malnutrition is depicted in the upper left. The child may be eating a very healthy diet, but if they are not absorbing the nutrients in the food, they will not be healthy.

Unfortunately, leaky gut syndrome causes much worse problems than malnutrition. The increased porous nature of the gut lining due to irritation and inflammation allows food particles and pathogens to enter the bloodstream and cause a chronic autoimmune response and chronic inflammation.

This cascade produces food sensitivities, allergies and eventually leads to Leaky Brain; a condition in which the blood-brain barrier becomes compromised and allows for this same process to now negatively affect the brain.

Food sensitivity is a condition in which a child's immune system attacks certain foods that the child eats, because the immune system has mis-identified that food as something harmful (like a bacteria). This is extremely insidious because oftentimes the child has no ill-effects from the sensitivity until days after the food is consumed.

This cascade of events leads to encephalitis (an inflamed brain) which then results in many of the symptoms we see in neurodevelopmental conditions such as trouble focusing, anxiety, rage, depression, speech delays, motor planning difficulties and more.

Here are some warning signs that your child might have a digestive system problem:

C – Section delivery - Typically we receive our microbiome (healthy gut bacteria) from our mother when we pass through the vaginal canal. C-section deliveries skip this step, so these babies do not inherit the healthy bacteria from mother the same way.

Antibiotic Use – Antibiotics don't just harm bad bacteria, they also destroy the healthy bacteria that is very important to our system. If the healthy bacteria in our system are

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destroyed, it often leads to a breakdown of the healthy lining in our small intestines. This often precedes leaky gut disorder, which then leads to multiple sensitivities, allergies, and neuroinflammation.

Loose stools – A healthy stool should be solid with a rich, brown color. The stool should not be too hard or too soft. Here is a wonderful article by Dr. Joseph Mercola discussing what our stool says about our health:

<http://articles.mercola.com/sites/articles/archive/2013/02/14/normal-stool.aspx>

Stomach Pain – When children have problems with their digestive system, they might complain of ‘tummy aches’. This is typically caused by inflammation in the digestive tract. Stomach pain is not always associated with food we have just eaten. In fact, it is very common for children to have stomach pain a day or two after eating food that irritated their system. Monitoring your child’s diet and how they react to foods (even days later) is a very important step in the healing process.

Addiction to certain foods – Does your child request the same food over and over? Pizza? Cheese and crackers? Macaroni and cheese? Many children have sensitivities to gluten and grain products, as well as to dairy. What makes this problem worse is that they are often addicted to the very foods that they are most sensitive to; as eating these foods soothes opiate receptors in the brain. If a child is constantly requesting foods with a high gluten/dairy content, it is a major sign that they need to heal their digestive system.

One of the best ways to learn more about how your child’s digestive system (and how to heal it) is to read a book called Gut and Psychology Syndrome by Natasha Campbell-McBride, M.D.. Not only is Dr. Campbell-McBride the mother of a child with learning disabilities herself, she also holds master’s degrees in neuroscience as well as nutrition. This is a really great resource to read as parents, and I highly recommend adding this book to your library.

One of the most important steps to heal the digestive system is to remove offensive foods that trigger a negative immune response and cause leaky gut syndrome.

4. The **immune response needs to be reset.**

Allergies, asthma, food-sensitivities, and autoimmune conditions all have one thing in common: they represent an immune system that has gone haywire.

The immune system is one of the most important parts of the human body. Without it, we would be vulnerable to every bacteria, virus, fungus, and parasite in our environment

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(and there are many!). These microorganisms would kill us in a matter of days if it weren't for our immune system.

A healthy immune system allows the body to appropriately respond to foreign invaders, such as pathogenic bacteria or viruses. Many children in today's world actually have an immune system that is overactive. It is chronically stimulated, and as a result is no longer able to create a proportionate response when there is a problem. The immune system starts to over-respond to every threat, even to the point where it can attack the body's own tissue (which is how many autoimmune conditions begin.)

In essence, these overactive immune systems respond to a minor infection (such as a cold) with the immune equivalent of dropping a nuclear bomb.

Think back to the last time you had the flu. You probably remember feeling bloated, foggy, and having your entire body ache. The reason this happens is because in the case of the flu, your immune system responds by producing inflammation to kill off the virus. This is a healthy response, but the side-effects from that response cause you to feel terrible.

For many children, their body's and brain's are inflamed to the point where it is like they have the flu all the time. The inflammatory response does not shut off, because of a variety of processes that are keeping the immune system turned on and engaged in an unhealthy way.

Various processes can cause an immune system to be overactive. Parasitic infections, chronic viral infections, a Vitamin D deficiency, food sensitivities, and heavy metal or environmental toxicity can all negatively affect the immune system; resulting in a system that is overstressed and unbalanced. Another major cause is an imbalance in the autonomic nervous system, which we will discuss in-depth in the next section.

In order to stop the chronic autoimmune involvement and hyperactivity of the immune system, their needs to be sustained and diligent steps to remove offending and irritating

substances as outlined above, as well as specific protocols designed to restore the gut (GAPS diet, Specific Carb Diet, etc).

This process is certainly not an easy one and requires the assistance of trained professionals. You can find a certified GAPS practitioner or a trained bio-medical doctor by visiting the links below:

Find a GAPS Practitioner
Find a Bio-Medical Doctor

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While the gut health is certainly one reason for an altered and overactive immune response, one of the most commonly overlooked reasons (the missing link if you will) is that the nervous system is no longer properly controlling the immune system. Without the proper guidance from the brain, the immune system does not know how to have a healthy response.

The children who undergo care in our office often have one major thing in common: when we can restore a normal, healthy balance to the nervous system, the immune system improves.

When the immune system becomes balanced, many of the hyperallergic responses that the child has been suffering with go away. This leads to healthier, happier kids, who get sick a whole lot less.

5. The health, balance and integrity of the nervous system is paramount.

The nervous system is a fascinating system. As complex as the system can get, the nervous system is based on a very simple process. Our nervous system takes in information from our senses (sight, sound, touch, taste, touch, smell, and proprioception). Once that information comes in, the brain processes it to coordinate a healthy response.

Our senses don't just tell our brain about the world around us, they also drive the development of new brain connections in important ways.

If the brain is not getting accurate sensory information from the body, it can cause significant neurological problems.

Dr. Robert Melillo in his book *Disconnected Kids* frames it perfectly:

“The senses and the processes that stimulate the brain are closely entwined. Although the brain is able to provide a certain amount of stimulation on its own (dreaming is the best example) it is mostly dependent on outside sources to spark neural growth (new brain connections). The outside sources of natural environmental stimuli on which the brain depends are: light, sound or vibration, odor, taste, temperature, touch, pressure, and gravity.”

While most individuals recognize that the brain is not functioning properly in neurodevelopmental conditions, they fail to recognize that the brain is constantly changing and that it can actually improve.



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The wondrous ability of the brain to adapt is called neuroplasticity, which is the process of the nervous system rewiring to make new connections.

The concept of neuroplasticity tells us that the brain changes structurally and functionally based upon our experiences. The more we do a particular activity such as driving a car or swinging a golf club, the more the brain creates stronger connections and pathways which make that activity even easier.

The process of the brain making new connections is how we learn any new skill or activity. While these changes are often good and make life easier; the brain can also create connections that are less than ideal. The brain may actually create negative pathways that perpetuate undesirable habits or neurophysiological functioning.

The Autonomic Nervous System

The autonomic nervous system is that part of our nervous system that does everything automatically for us. We don't have to think about breathing, digesting our food, and making our heart beat because it is all performed automatically. The nervous system determines the needs our bodies have and then responds appropriately.

As long as it can interpret those needs accurately and send the proper signals to all of the parts. That automatic system is subdivided into two branches:

- the sympathetic nervous system (Fight or Flight) and
- the parasympathetic system (Healing, Resting Digesting, Development)

The nervous system is only able to be in one of these states at a time. This is an extremely important concept, because fixing an imbalance in these systems is key to healing and optimal function for children with neurodevelopmental challenges.

Imagine that you have a pair of red glasses and a pair of blue glasses. You always have to wear glasses, but you can only wear one pair at a time; and the pair that you wear greatly influences how you perceive and interact with the world.

When you wear the red glasses (Fight or Flight), your heart rate elevates, your palms begin to sweat, and blood flow shifts from organs of digestion towards the large muscle groups so that we can run or fight.

Even the blood flow in the brain shifts from areas concerned with higher functioning to areas associated with immediate survival.



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When you wear the blue glasses (Healing, Resting, Digesting, Development), you are much calmer. Your body focuses on development, repair, digestion, producing the right hormones, and maintaining homeostasis. Areas of the brain that are associated with higher functioning are engaged, while areas associated with emergency situations are not active.

Many individuals, especially children experiencing neurodevelopmental disorders, find themselves in a state of a chronic sympathetic (Fight or Flight) response.

While this state is a positive temporary response to a stressor, chronic activity of this system will cause breakdown and malfunctioning of our bodies and health. This is akin to wearing the red glasses constantly, and almost never being able to take them off.

The chronic engagement of our sympathetic nervous system will cause a continuous supply of stress hormones, will disrupt sleep patterns, and will lead to chronic gut and digestive complaints.

This stress response will also lead to a variety of symptoms from other body systems, which are caused by the body's inability to repair itself while under constant stress.

From this perspective, one soon sees that balancing the autonomic nervous system, removing neurological stress and improving the health and functioning of the nervous system can have dramatic positive effects on a child with neurodevelopmental issues.

Creating a Healthy, Balanced Nervous System

By shifting the nervous system out of the chronic stress response, the brain and body are now able to enter phases of restoration and development that were previously inaccessible.

As the brain and body are able to get into these phases of restoration, the individual is able to achieve a better understanding of their own bodily needs, and then the brain can provide the appropriate and healthy response that is needed to heal.

While most therapies are aimed at treating or modifying symptoms, the objective of chiropractic is to bring balance to the nervous system by addressing any structural imbalances in the spine that may be interfering with optimal spinal cord and brain function.

Structural imbalances or misalignments of the spine are known as vertebral subluxations. Subluxation of the spine will, by the vary nature of the anatomy; produce irritation of the delicate neurovascular system that resides within the spine and skull. If you look at

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the chart above, you can see very clearly how interrelated the sympathetic and parasympathetic nervous systems are with our spinal cord.

Studies have shown us that these spinal misalignments distort the nerve signals going to the brain or back down to the body, resulting in dysfunction and a wide range of possible health conditions. Studies have also shown us that correcting these subluxations has a positive effect on the autonomic nervous system, and can also improve brain function.

To put it in very simple terms, vertebral subluxations distort or interfere with the vital nervous system messages going to the brain and cause the brain to work in less than optimal ways.

This neurological dysfunction occurs because of the inaccurate information that the brain receives from the body. In the scientific community, this inaccurate information is known as dysafferentation.

When a child's brain is not getting accurate information from their environment, it becomes much more difficult for them to regulate their senses.

For a child with special needs, restoring the healthy neurological communication pathways often means that the child is now able to accurately perceive their environment, and then form a healthy response.

Correcting vertebral subluxations improves neurological function, allowing the body to better strive for optimal health, function and quality of life. This is why many parents and providers consider chiropractic an essential part of your child's care by assisting them to express their optimal health, function and well-being.

Vertebral subluxations can have many causes. Childhood falls, a difficult pregnancy or birth, and sports injuries are some of the most common; but there are many others as well. The common factor is stress either physically or chemically in some manner either through environmental toxins or altered autoimmune processes.

How to Determine if Your Child Has a Compromised Nervous System Due to Subluxation

The best way to find out if your child has vertebral subluxations that may be contributing to their health challenges is to schedule an appointment for an evaluation and testing.

In our office we use non-invasive testing of the autonomic system to determine if your child's nervous system is in a state of imbalance and then employ very gentle and very safe hands-on procedures to restore the integrity and balance of the nervous system.

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To find out if your child is experiencing structural imbalances that may be contributing to altered nervous system functioning, call our office at 303-399-3569.

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If you live outside of Denver go to www.ICPA4kids.org to find a pediatric focused chiropractor in your area.

If you have any questions, please feel free to email me at info@zonehealingcenter.com or call me directly at the number above. We also offer regular workshops on this topic and you are welcome to attend to learn as much as you can to help your child.

All my best and hopes for amazing improvement for your child and family.

Isaac A. Mooberry, D.C.