Editorial

Interview with Dr. Jaquelyn McCandless concerning medical evaluation/treatment for autism spectrum disorder

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Abstract

Autism is treatable, and the younger we can start the better. However, it's never too late to start helping these medically ill children gain better health. Infant vaccinations with toxins and antibiotics have damaged their gastrointestinal tracts and immune systems. We have learned that gut health is primary on the healing path, and a restrictive diet (no casein, gluten, soy, or sugar) is the first and best strategy parents can use to start their children toward recovery. Once we stop food intake that keeps their guts inflamed and utilize helpful laboratory studies to guide us, we give them nutrients required to feed their starving brains and can properly treat and then prevent gut infections that cause so many stool problems. We can begin correcting their impaired methylation and folate metabolism with newer exciting treatments such as methylcobalamin injections which help their methylation and detoxification mechanisms work more efficiently. We have learned ways of chelating the heavy metals from their bodies with mild agents that aid detoxification such as TTFD to more serious but very safe chelation agents such as DMSA and now also DMPS in a very effective and non-invasive transdermal form. These and other immune-enhancing strategies help us manage viral infestations which tend to accompany toxic insults, often without prescriptives. This broad-spectrum bio-medical protocol is bringing great improvement and even recovery to unprecedented numbers of ASD children now.

Keywords: autism treatments, autism spectrum disorder, methylcobalamin injections, heavy metal chelation agents

It is my privilege to welcome Dr. Jaquelyn McCandless, author of Children with Starving Brains: A Medical Treatment Guide for Autism Spectrum Disorder. Dr. McCandless is an experienced clinician and is certified as a Diplomate of the American Board of Psychiatry and Neurology. Welcome Dr. McCandless and thank you for joining us on AutismOne Radio and Autism Help, Hope and Healing.

You're very welcome, Teri, I'm happy to be with you.

Dr. McCandless, what is the importance of recognizing that children diagnosed with autism are medically ill?

The main importance is that these children cannot tell us when something hurts. They have a high pain threshold and they may have a terribly inflamed gut or a severe ear infection, they may be irritable, but they can't point to their ear, they can't really tell us what it is. So it is extremely important for us to have a high level of suspicion that they are medically ill so that we can treat them.

Is there a problem with viewing autism from a predominantly genetics-driven perspective?

A big problem, because millions of dollars have been spent in genetic research looking for that one elusive gene that causes autism—and no one has ever been able to locate it. We certainly know there are genetic susceptibilities in many of these kids, but there is no clear pattern, and epidemics are not genetic. Most of us think there are at least 4 to 6 genes that would be responsible. So to look at it as primarily a genetic disease, in my mind, wastes a lot of time and money. I think that some of the research and money could go to that, but I believe the main problem is we're not adequately treating all the hundreds of thousands of children that are sick right now and need treatment right now. I feel treatment is the greatest need-- rather than spending all the money and all of the effort on genetic research that doesn't help all our currently sick kids.

Those are very good observations Dr. McCandless. What factors do you think trigger autism?

I believe the primary trigger for the current autism epidemic is the Thimerosal in vaccinations and the number of vaccinations that kids get. Overuse of antibiotics have played a role, and lack of knowledge of proper nutrition with sensitivity to milk and other foods such as wheat and soy has also played a role in this particular group of children. There are a large number of children that absolutely cannot handle the large peptides in milk and wheat and soy. But primarily I think that the Thimerosal in the vaccines and the number of vaccines that children get, very early before their immune system can really handle all of those toxins, is the main triggering factor.

Do we have clinical lab and other science to substantiate this?

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Yes, the research is coming in very fast. For one thing, just looking at the studies of the rise in autism that has occurred with the increasing number of vaccinations, the epidemiological evidence is pretty overwhelming that beginning with the increase in childhood vaccinations, there has been an increase in autism. And it has definitely increased. In 1980 or 1985, one in ten thousand children had autism. As the vaccination program increased, the number of children who have autism increased along with that. Evidence shows that from 1 in 10,000, it is now 1 in 166 children who have autism in the United States.

On top of the epidemiological evidence to substantiate certain triggers, do we also have clinical lab and other biological science?

Yes, we have had wonderful scientists coming to our aid. Just in the last couple of years, Dr. Richard Deth and Dr. Jill James have provided top-notch scientific research showing evidence of the damage Thimerosal does to the neurons in the brain. Their work has revealed the evidence of methylation defects and how the sulfhydryl reactive metals such as mercury, lead, arsenic and cadmium appear to be "triggers" for the many symptoms we see in our ASD children. Dr. James in her autistic study group helped us see how the decreased glutathione from the effect of this neurotoxin results in oxidative stress and neuronal cell death. Reduced cellular methylation capacity then leads to reduced DNA methylation; her work showed how certain nutrients could help these disordered pathways recover glutathione levels and antioxidant capacity. Such basic research leads to exciting new treatment intervention strategies that are helping many children now. Dr. Mady Hornig has done research on mice that are given these toxins and they show actually the same kind of characteristics that our autistic children do. Dr. Boyd Haley has contributed to the research on the devastation of mercury to brain cells. So, yes, the research is coming in, every day more and more showing that Thimerosal is an incredible neurotoxin to the brain; it starts a whole series of events that are very consistent with all of the symptoms and signs that we see in our autistic children.

I'd like to ask, what is the problem with relying solely upon behavioral and educational therapies, sometimes with psychoactive drugs thrown in?

What we feel is that an optimal brain that's healthy and a metabolic system that's functioning will help a child respond better to our educational and behavioral therapies. We do know that there are certain children who are not so damaged, who actually do come around and a few of them have even been known to get well just with behavioral therapy because we do know that brain stimulation does increase neural growth and as children get older they do get healthier guts. But mainly what we feel is that the combination of the behavioral and educational with the biomedical, where the children have a healthy gut system and a healthy immune system, helps them make much better progress overall as well as have better health.

That is a very important point, Dr. McCandless. Why did you name your book Children with Starving Brains.

What I have learned, starting with my explorations and efforts to heal my granddaughter Chelsey 8 years ago, was that these kids have nutritional deficiencies and absorption problems so that they're not getting the nutrients the brain needs to function at the level it needs to operate normally. So, basically, it's just what it says. These children, because of their impaired guts and because of their impaired immune systems, can not take in the nutrients that the brain needs in order to function correctly.

What physiological systems are affected in a majority of autistic patients?

Practically all of them. I don't know if there are many children who do not have the gastrointestinal problems. In fact, someone could even say that autism is a gut illness because almost invariably these kids, when they undergo endoscopy, are found to have inflamed guts and enlarged lymph nodes, a gut that is clearly impaired in taking in the kind of food nutrients and breaking them down that are needed to nourish the body. So I would say that the gut is the main and first system affected. And what we know is that mercury that is injected in the vaccinations very early does injure the gut and impairs the immune system. So the two main physiological systems that are affected by the toxins they receive are the gut and the immune system. It creates a vicious cycle; the immune system is impaired and so the kids start getting a lot of infections. Many kids have a history of a lot of ear infections when they were infants with a lot of courses of antibiotics. The antibiotics are another factor that injure the gut and impair the immune system. The inflamed gut is susceptible to invasion by pathogens like yeast and clostridia, and then the antibiotics come that further inflame the gut and kill off the good protective bacteria, so we get a cycle of gut injury, immune impairment, more antibiotics, further injury, and a gut that cannot absorb proper nutrients, and an immune system that cannot keep the child well.

What's the first thing, in your estimation, that a parent should do upon suspecting an autism spectrum disorder diagnosis, even if it's before a scheduled doctor's appointment?

I think self-education—read, talk to other parents. I think a parent needs to get on the internet and find out the wealth of information that is out there. Of course, I think they should read my book which is a primer that tells them what they can do and how they can start. They can do a lot of things before they get that doctor's appointment. And the main thing, the first thing, is to take away milk, wheat and soy. We know these children cannot break down the large peptides of milk, wheat and soy. They are poisons to the brain and the number one thing the parents need to do is remove them from their child's diet.

So does it matter what type of doctor with whom the parents schedule an appointment?

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Yes, I would say you can try to get a DAN! (Defeat Autism Now) doctor who has been trained in this, that's the ideal, but it is not always possible. The type of doctor you need is a doctor who is open to you wanting them to investigate the gut, the immune system, the problems we know our children have. You need a doctor who is open to the fact that these children are medically ill and need an investigation to check the status of the gut, to see whether they have a yeast or bacterial infection, and one who is willing to test to see what kind of gut treatments such as anti-fungals and nutrients they need so that they can start getting well.

So the parent does the things you suggested ahead of time, before the scheduled appointment; they go to the appointment; their suspicions may be confirmed. What is the first thing a parent should do upon receiving the diagnosis?

Prepare themselves for a lot of work, 24/7, because the effort in getting these kids well is a tremendous task for the parents. And I encourage them to take it on as something that's not forever, but for right now they really do have to pay incredible attention to what this child needs to get well. I think one of the hardest things for the parents who haven't been exposed to this is to realize they cannot feed their child what most children eat. They cannot eat pizza, ice cream, fried chicken. They can't eat the foods most kids like. They have to be put on a strict diet. That's the number one thing that the kids need for their healing. When I first started working with kids, I had two groups of parents. One, the parents were very conscientious, they obeyed everything they had to do: they took away the wheat, they took away the milk, they took away the soy, and finally they took away the sugar. These kids were starting to get well, and well, and well. I had another group where the parents were resistant. They couldn't believe that a little bit of sugar would hurt, or a little bit of bread, or a cookie here and there. And those kids would constantly keep getting yeast infections, clostridia infections, have regressions, over and over. Finally, after I became well known and could have all the patients I wanted, I would just say, "I will not take any parent who is not willing to be strict with the diet and really work on this." If we don't get the gut well, we don't get anywhere with these children. Their gut healing is number one.

That's a good point. I've heard that the diet is an all or nothing diet. And some parents have made the point to me that you can try to have a special diet written into your child's IEP (Individual Educational Plan).

Yes, I think that it's extremely important for the schools where they go and for the grandparents and caretakers who take care of these children to be well-informed that these foods are actually poison to these kids. Sometimes you just have to say they are allergic to them. You tell the schools your child is allergic to these foods and they are responsible if their child has an allergic reaction. It is not a true allergy, but it's just as bad. I now say I will not waste parents' money testing to see whether their kids can handle wheat and milk because too many kids who will test okay will not do well until they're finally put on the diet and have lost precious time. So 100% of my patients go on the diet right away and I'm having much better success getting kids well with parents who are willing to really observe 100% the diet that the kids need to be on. At first it was just milk and wheat. Then it became soy because the soy is just as bad as milk and wheat. And finally the sugar and the sugar is the criminal that allows the yeast infections to grow more and more, over and over. Yeasts love sugar, that's their favorite food. Every time you give your kid a cookie, you're inviting the yeast to overgrow. And until we can really get that message clearly into parents, we will delay their healing.

What about things like artificial dies or artificial flavors?

Yes, some children are extremely sensitive to the phenols. Our kids have trouble detoxifying. That is one of the characteristics of autistic children—they cannot handle the toxins that most people tend to handle. And we have to rid their food and their environment of as many toxins as possible to allow their systems to actually recover.

So what are the first things that you determine when you meet with a new patient?

I see if the child looks really sick, although these kids can look beautiful and be very sick. Many of them have just wonderful expression, like angels. Some of them do not look like they are unhealthy at all and yet, when I test them they have numerous nutritional deficiencies, some with yeast infections that have gone on sometimes for years. It's amazing. So I think the very first thing I do, is to see how the parents feel—what their attitude is toward how they want to heal their child and how much effort they're willing to put into it.

When I was in my learning curve with children, I might first test the gut, I might first test to see if they had yeast and I would treat that. Then I would do tests to see what the nutritional deficiencies are. But now I feel the best thing to do, is to test everything—test the gut, test the immune system, test the metabolic systems, the toxicities. I want to get a whole picture of this child. I can lay out a treatment plan for this child with all of this testing. Even though it's a big financial investment, it's really worth it to get that picture because you can lay out what the child needs for a long time from all that preliminary testing.

Now you have just spoken about concurrent testing. But is it best to treat multiple classes of symptoms at one time in an autistic patient, or is there a preferred order for maximum efficiency and optimal recovery?

That's a complicated question because we do have to heal the gut. And healing the gut may involve first treating a yeast or clostridium infection, but we also need to replace the nutrients. So I would say that the number one healing process is to tend to the gut by remove the items in the diet that are causing inflammation; the diet would be number one before anything else—they need to take away those offending foods. Then we need to treat any infections in the gut. So I would say that healing the gut is number one and replacing the multiple nutrients that they

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need, and right in the beginning you can start the methylcobalamin injections to start getting the metabolic imbalances corrected, along with replacing nutrients and healing the gut; they all work together. So I would say that on a continuum, first would be healing the gut and replacing the nutrients and second would be getting the metabolism corrected but basically these all need to happen concurrently.

Then after that, when we get the child in good condition, third is that we want to remove the heavy metals. That's when we start looking into chelation or detoxifying processes. Many kids have viral infestations too, but in my scale, that would be usually number four, even though I test for viruses right away in a full assessment. I would say healing the gut, replacing the nutrients, correcting metabolic imbalance, removing the metals, and then treating the viruses. Often when we remove the metals, the viruses are taken care of in many cases. We all have viruses, but if they're overwhelming, sometimes we do need immediate specific antiviral treatment, but often healing the gut, replacing the nutrients, and getting metals out will often take care of viruses.

When a new patient walks into your office, is there a direct correlation between how many areas of the child's physiology are affected, how many symptoms they show, and what you can prognosticate for that child?

Teri, this is the hardest question because no, I would say it's very difficult to make that correlation. After a while, after I've seen hundreds of kids, I just know their problems. I know they almost all have gut inflammation, I know they have nutritional deficiencies. But they don't always show it. Often the kids look great; you can't tell from how badly they "stim," or how compulsive they are. You cannot really correlate that clearly. Some kids can have incredible imbalances, incredible inflammation and not show any symptoms particularly. Others can show a lot of symptoms, they'll lean over the couch, they want pressure on their abdomen, it's clear they've got a stomach ache. But it's amazing, these kids have very high pain thresholds and often they do not show symptoms so that I can't prognosticate. What I prognosticate mostly is the willingness of the parents to do everything they can—that is the biggest factor. And as soon as they can. And to realize that the sooner we get to the work of getting them well, the better response that we're going to have.

So tell us what kind of laboratory testing is important. I think you may have touched on this already.

I have worked out a system, I usually ask for about ten or eleven tests in an initial evaluation. Shall I name them?

Okay.

1) I order a 90-food IgG Hypersensitivity test. (All the kids I evaluate now are already on the diet – I do not do this test until they are). These kids may do well at first on the diet, then they may plateau or even regress. We need to do a hypersensitivity test because they may have built up a sensitivity to something like eggs or corn, or something else that they have in the diet one wouldn't suspect. Some parents may say "this diet didn't work;" it is because they never went beyond the gluten and casein and didn't take out soy, or they didn't take out corn, or they didn't take out something else that their child may particularly be sensitive to. So that is something very important to check after they have started the diet.

2) I check Hair Elements (not hair toxics) to get a picture of toxic excretion. Some people don't use hair elements; I've been using them for 6 years and I do find they're helpful to me. One does need experience in reading them, however.

3) I do a Comprehensive Stool Analysis with Parisitology and this is to see what the climate of the gut looks like, what kind of probiotics they need. All these kids need probiotics—those are the "good bugs."

4) I do a plasma Amino Acid Analysis. The deficiency in breaking down the big peptides cause many kids to have a deficiency in some of their most important amino acids. And these are what create the precursors to the neurotransmitters in the brain. Almost all kids need replacement of amino acids. From the amino acid test, I will have a customized formula made up for these kids that will give them exactly what they need.

5) The next one is the Homocysteine test. It partially helps us assess the methylation status and folate metabolism.

6) We check the RBC (red blood cell) Elements (minerals and toxins). This is an important test to check the intracellular level of important minerals and toxic metals, important in chelation both before and during.

7) I do a Vitamin Panel to see which important anti-oxidant vitamins they're needing.

8) I do a plasma Fatty Acid Analysis. The omega-3s are almost always deficient in these kids—the omega-6s, too. The fatty acids are very important as brain cells are mostly fat.

9) I do an Organix (urine organic acid) analysis. This tells me many of their metabolic deficiencies and it tells me whether they have a yeast or clostridia infection. It's actually better than the stool for this, as the stool often will not show a yeast infection that may be present. So parents who think they'll get a stool analysis and it doesn't show yeast—they may think that their child does not have yeast. Yet that does not tell the story in many kids. Often the process of the stool analysis itself destroys the yeast before it can be picked up. If it is there, it is usually a strong infection, but yeast can dig deep into the mucosa and become colonized, and you have to get the byproducts of the yeast in the urine to find out if they are there in the Organix.

10) The next test is the Premier Autism Panel done at Immunosciences Labs in Beverly Hills, CA. This immune/viral panel consists of 17 tests, checking elements of the immune system. It has another test for toxicity, the cellular metallothionein challenge test, which tells us how well the child is detoxing on their own. It checks for viral antibody titers and titers against brain auto-antibodies, indicative of an autoimmune process among others. This is an extremely important panel.

11) And the 11th one is a basic CBC, (complete blood test), a Chemistry Panel, checking liver enzymes, an Iron panel, and a Thyroid panel. BTW, hypothyroidism is not rare in our kids.

So this is a list of how I evaluate a child now that first comes to me. I check the stool, the hair, the urine, and the blood.

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Would it be okay with you if I reiterated those tests for our listeners?

Sure, go right ahead.

You do an (1) 90-food IgG sensitivity, (2) hair elements, (3) comprehensive stool analysis with parisitology, (4) amino acid analysis,(5) homocysteine level, (6) red blood cell (RBC) elements, (7) vitamin panel, (8) fatty acid analysis, (9) urine organic acid test, (10) immune viral panel with metallothionein challenge test, (11) CBC, chemistry panel, iron panel, and thyroid panel.

Thank you for providing that helpful information to our listeners.

In children who have significant gut dysfunction, do you feel that this makes their autistic condition more pervasive?

Absolutely, because if they're not getting the nutrients they need and their metabolism isn't working, it's very difficult for anything else to get going. Again, I would say the gut is the primary challenge.

Why are many children's guts so impaired and what are different issues that arise after the initial insult and how do you test and treat the various gut issues? I know you mentioned yeast. Are their other issues as well that you test and treat for and that you find?

Their ability to take in nutrients, we learn from the testing that I just enumerated. If they have an amino acid deficiency and many of their essential amino acids are low, we know that something is happening in the gut. It usually is overwhelming inflammation and they're not being able to take in what they need. Many of the things we do in this initial testing guide us: the stool analysis so that we can give them the proper probiotics to put the good gut bugs in there to crowd out the bad ones. We check the organic acids to see if there is yeast and/or clostridia, and if we need to, we give them anti-fungals and anti-bacterials. And many of these kids do need to be on anti-fungal medication. Most of these kids, if they have not been treated, and have not been on an excellent diet, have yeast infections. So if you have an overwhelming yeast infection, a parasitic infection, that keeps the gut inflamed, it causes diarrhea or constipation. I would say two-thirds of the kids get diarrhea from yeast and maybe one-third will get constipation, and occasionally we will get a child who has beautiful stools and they don't have either constipation or diarrhea and yet they have deeply embedded yeast that is continuing to cause gut inflammation, and yet the lower part of the bowel will form the stool. So you can't always say that if the bowels are normal, that the child does not have a yeast or a clostridium infection. But I would say most of the time these two primary classes of pathogens cause diarrhea, constipation, gas, bloating, and just general malaise.

Does yeast cause behavioral anomalies?

Oh, yes. When a child is going along fine and then maybe the holidays come and people give them a lot of sugar or things that they shouldn't have, we'll see a regression. They'll start characteristically with yeast infections. They'll get silly and they'll laugh inappropriately and they're stimming along and they are just hyperactive. We say with yeast kids get giggly and with clostridia they get mean, they get irritable, they break things, they don't feel good.

So yes, there are definitely behavioral correlates with these gut infections.

Do many of the children have metabolic abnormalities, and how do you test and treat for that?

I would say all the kids have metabolic imbalances, and treating these metabolic imbalances has been one of the most important things we have discovered in the last year and a half. Dr. James Neubrander has been the pioneer emphasizing how important it is to give the kids the methylcobalamin injections and the best way to do this. One of the things our scientists have shown is that the early injury to the gut affects the folate chemistry in the child's brain and destroys the ability for them to take in this form of Vitamin B-12 called methylcobalamin, or MB-12. That's the only kind that can enter into the central nervous system and it is best when injected. We tried to give oral, we tried to give transdermal, but really the imbalance is so great and these kids have been so impaired metabolically in their folic acid cycle in their brain chemistry that the only way that we can start real recovery on many of these kids is to give them the injected methylcobalamin, and maybe for up to two years or more. Thousands of children now are getting these injections from parents who thought they would never be able to give shots, and they have been giving them because this is one of the things that the children respond to the fastest. Dr. Neubrander reports that 85 to 90% of children respond positively to the methylcobalamin (not always without some initial side effects); effective folate chemistry is crucial to proper brain function.

How do you determine toxic accumulation and how do you treat that.

We believe that most of the kids do have toxic accumulation because they have impairment in their glutathione system. Many of the things that I've talked about, the vaccinations, the toxicities deplete the glutathione which is the body's own way of detoxifying itself. So in order to check for the toxicity, I have three tests that I do. I do an RBC elements/minerals, I do a Hair Elements, and I do the Immunosciences Metallothionein test and these will show me the degree to which the child is struggling with toxicity in their body. Most of these kids are not putting out any mercury at all and that is a real indication that they are retaining it. Dr. Amy Holmes, Mark Blaxill and Dr. James Adams did a very elegant study on new baby hair and the difference in autistic children and normal (or what we call neurotypical children) in excretion of mercury was striking. The ASD babies do not have the ability to excrete the mercury; they retain and accumulate it. So I check these three tests and prepare the kids first by healing the gut and getting the body into a good

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nourished state, then I'm ready to approach the removal of these metals. Yet some will say removing metals is absolutely number one, and even think that that should come before even trying to heal the gut. I don't agree with that. I think that entering the child into the chelation process without doing some gut healing and nutrient replacement may place too much stress on a sick body.

Then we try to replace the glutathione which happens with the nourishment that we're giving them, in the nutrients and the MB-12. We have a form of mild detoxifying agent, transdermal allathiamine, called TTFD. If I can get really little kids and get their gut healed and get their metabolic systems in order, some of them will actually turn around with TTFD alone. I have all my kids on it, even those using other chelation agents. Dr. Derrick Lonsdale did an elegant study showing that this is a detoxifier. It is a "weak" chelator--it doesn't go in and grab the metals in the way the heavy duty chelators like DMSA and DMPS do, but we always start out with TTFD because it is a transdermal cream and it has been made now in a form called A*uthia* that parents can buy over the Internet. It does not seem to pull out minerals and it is safe, so no pre-testing is required. Parents can use this transdermal cream twice daily to start getting rid of arsenic, cadmium, aluminum, and eventually mercury too in no particular order. However, we usually don't rely on that for the total chelation, but it is a place to start.

Okay. You've mentioned replenishing glutathione and using TTFD, or Authia. You also alluded to DMSA. Can you describe the other different types of chelators, the testing that must be done to monitor during this process, and additional nutritional bolstering and support before and during chelation?

Yes. Prior to chelation, besides the factors that I've said about healing the gut and replacing the nutrients, we always need a basic test to make sure that the liver enzymes are okay before we start and that the minerals, especially zinc, are at good levels. Chelation, in the way we use it, is extremely safe. I've never had any bad medical problems happen with DMSA, other than that DMSA encourages the growth of yeast. The yeasts love all the sulphur-containing compounds, and with DMSA we have to worry about yeast overgrowth. Before I got wise to the diet and the knowledge that the kids cannot have sugar, my chelation maneuvers would be derailed by a massive yeast infection--where the kid would get really sick. We would have to stop chelation to again heal the gut, treat with antifungals, and get the child stable so that they could handle chelation.

The DMSA is FDA approved for lead poisoning. Once a drug is approved for anything, we as physicians have the right to use it for other conditions that we feel it's appropriate for. Even though its approval is for lead removal, we use it for mercury removal. It's still used for lead removal too, as it's an excellent chelator for both lead and mercury. This is the chelator that DAN! most recommends, and we use it very carefully. The only way to really assess mercury poisoning for sure is to do what we call the challenge test. We give the child a good dose of oral DMSA based on the child's weight, collecting a pre-challenge and then post-challenge urine for comparison. This is the only definitive test; we can get inferences from all the other tests we do, but the one that will tell the tale for sure is a challenge test. So we can do a challenge test to show that the child is in fact mercury poisoned, but it is not always essential unless the parents just want to know this for sure. Then we start a process of chelating the children and the pattern we use with the DMSA is 3 days on and 11 days off. For 3 days we give the DMSA in a dose that's relative to their weight in divided doses. Some people say, give it every 4 hours around the clock; others say every 8 hours. With the smaller children, I tend to use the more frequent, smaller doses every 4 hours, every other weekend. With the bigger kids, often their guts are better; they can handle the larger doses and I give it every 8 hours, 3 days on and 11 days off to let the body remineralize.

There's another strong chelator, DMPS. Unlike DMSA, this drug is not approved by FDA, but we can get it in bulk and it is legal for compounding pharmacies to make it up with a doctor's prescription. It's been approved for 50 years in Europe; it's used there and considered a better chelator actually than DMSA. It does not encourage yeast to the same degree as DMSA does. In the AutismOne conference last year, Dr. Rashid Buttar introduced a method of using DMPS in a transdermal form and he has made up a proprietary formula that includes glutathione and DMPS. He worked out a protocol where this is applied in the form of drops or cream every other day. The drops are again according to the weight of the child. This is a non-invasive, very easy way for people to chelate their children. Fastidious attention has to be paid to the mineral intake for both DMSA and DMPS. The zinc is extremely important. The most important minerals are the magnesium and the zinc for DMPS and Dr. Buttar has worked out a protocol where you do not give zinc or selenium or minerals for a certain period after you give the DMPS and for a certain period before you give it. So the protocol must be observed and the minerals are very carefully attended to so that the child does not become demineralized.

And regular monitoring is done, correct?

Yes. Before we do any of this, we check the liver enzymes, the CBC, the iron, the RBC Elements, and these need to be done regularly every two to three months throughout chelation; Buttar suggests a Hair Elements test every other time you check the other "safety measures."

And how long should a child be on nutritional bolstering before beginning chelation?

Every child is different. It depends on how impaired they are; it could be weeks to months. The organic acid test is a wonderful one to see the levels, and a vitamin panel— to see what needs to be replaced. And of course if they are on a good diet or already well along the way, they may get to it faster. Even though Dr. Buttar at first was saying all we need is to get the mercury out, some parents who made the mistake of going off the diet ended up with some very sick kids. So even he will say now, "If you are already on a diet, stay on it." He also recommends all children have the MB-12 injections along with chelation now.

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We are fortunate if we can get the little kids, 2 1/2 and 3-year-olds started on all this, because we have learned that the little kids turn around much faster that the older kids who unfortunately have been poisoned longer.

But what we feel is optimum is being on the diet, very carefully monitoring with blood tests to make sure that the minerals are okay, and giving them the chelating agents that we choose and on a regular basis until they recover.

Dr. McCandless, are there different categories of immune and autoimmune abnormalities that these children may have and what can cause them?

There very often are autoimmune processes in ASD brains—Dr. VK Singh has done some very extensive studies showing that 80 to 85% of kids do have autoimmune processes in the brain. On the viral panel that I do, we check the myelin basic protein antibodies, and we see that the viral levels and the autoimmune processes are an extremely important aspect of the autistic phenomenon. The measles viruses (vaccine strain) that may be alive in these kids' guts are extremely difficult to treat. There are some children who are so severely autoimmune that they need IVIG, or intravenous immunoglobulin treatments, though this only turns maybe 30% of them around. The main thing we do is to get their gut in good condition, metabolically balance them, get rid of the metals, and treat obvious viruses with anti-viral medication. By the way, I put all the kids on Lauricidin which is a natural antiviral and this helps the gut. It's a natural anti-viral, anti-bacterial, anti-fungal, non-toxic and effective. I think that this is a very important thing that parents can do on their own. They can order that over the Internet—www.Lauricidin.com. And if the child cannot swallow these bad-tasting pellets, they can get it from Ecological Formulas in capsules in the form of monolaurin. This is a good antiviral and the antivirals do help the autoimmune process. And if the kids do have large infestations of viruses, like the herpes viruses, then I will put them on antivirals Valtrex or Famvir for long periods of time. This isn't something you do just for a week or 3 weeks like you do with the yeast. With the antivirals, usually you have to treat for months at a time to get these levels down.

Now you've talked about this earlier, but how important are supplements? It sounds to me that you think they're vital? And what is going to happen if restrictions are placed on things like minerals or probiotics.

I think it will be devastating for our population. I think the nutrients *are* the treatment and these are accessible to the parents. They can find out what their kids need and some companies that make up the formulas cover the basics for a lot of the children. I myself prefer to use individual nutrients when I first work with the child, because to give them a multiple, you may not know what the child is reacting to. I give the individual nutrients always when I first work up a child and it isn't until they're pretty far along that I will give them a multiple. But many parents aren't able to do this extensive kind of testing I'm talking about, so they should get their kids on a multiple vitamin. Super Nu-Thera® at Kirkman's and the Brainchild Vitamins are excellent multiples. Dr. Mary Megson has some excellent multiple vitamins, Spectrum Biogenics. If parents can get testing, I believe it is best to give individual nutrients at the beginning, and sometimes this entails giving them 25 nutrients a day to find out how and what they respond to. If they get started one at a time, then parents will know what their child needs and what they respond to. These kids are so sensitive, they're so individual, that to give a multiple, sometimes a child will have a bad reaction and we don't know what it is in the multiple that they're reacting to. But still it's much better than nothing if you cannot afford a lot of testing.

And when you asked me before what's the first thing we do-we get rid of bad things in their diet, then we get them on a multiple vitamin until you can get the doctor to order testing to see what your kid needs individually.

You've mentioned a lot of different treatment options. What are the most recent treatment options that have been added to the various protocols. I know you mentioned Authia and I think there's something called NDF. What are the most recent treatment options?

The most recent treatment option that is number one that is probably the most important is the methylcobalamin injections. And Dr. Neubrander has worked with thousands of people now. When children would come in, he would start them on the methylcobalamin right away while he was doing all the testing to see what other nutrients they needed, just to see what effect it would have. He and all of us have some amazing stories about how this affects a lot of kids. So I would say, one of the most recent and most powerful things we have is the methylcobalamin injections and I highly recommend that everybody really consider that and get a doctor who will prescribe that to their children; it must be compounded by certain pharmacies.

I do think that Authia, which is a very mild and safe form of detoxing, is important. I also think that Dr. Buttar's application of the transdermal DMPS is another important recent one and I believe that Dr. Jill James' elegant work on showing the power of the nutrients to impact and help the folate cycle is another addition. We know now that combining the folinic acid with the methylcobalamin and sometimes TMG is probably one of the best things that we can do for all of our kids. There are other forms of folinic or folic acid that can help our children, maybe 10 to 15%, but 85% of them will respond to the combination of methylcobalamin and folinic acid.

Dr. McCandless, you alluded to this earlier, can children experience periods of regression during various treatments?

Yes, and I believe that the primary cause of regressions is dietary infractions—where they get some wheat, milk, or sugar and they get a yeast infection. Almost all regressions are caused by a gut inflammation, where they get an overwhelming yeast or clostridia (or both) infection. The toxins from the yeast disturb them and cause absorption problems and that's probably the main thing. Occasionally the phenols in children who are very sensitive to dyes, toxins in the home, exposure to bed clothing that has antimony in it—I advise all parents to wash

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every article of clothing that they buy for their children before they put it on their skin, because the flame-retardants and the antimony that is put in new clothing and bedclothes--these kids cannot handle this. So sometimes a regression can be from them being exposed to a toxic environment or being given food that they have a reaction to—causing an overwhelming yeast or clostridia infection. So these regressions really do derail—we have to stop everything and treat those when they happen.

Is there such a thing as yeast die off and a reaction to that?

Yes. Yeasts create incredible toxins and when we do treat the kids there is a die off. But I've never had a kid yet not get over die off. Although some parents do get some activated charcoal to help mop up some of the toxins, die off is part of it. In a way it is a good sign although it's pretty intolerable to go through. It's still showing that you had a lot of yeast there and you are killing them off.

Dr. McCandless, how much hope can you offer to parents of children who are 6, 9, or 12 years old?

Well, that's a very important question. There's no doubt that the earlier we can get to these kids, the easier it is to heal them and the faster they do respond. But I would say there's a lot of hope for anyone, even adults. And I treat the adults exactly the way I do the children—no matter what age they are, I do all the testing, heal the gut, correct their deficiencies, get rid of toxins, and treat the viruses. And we've seen some amazing things happen.

We can't really promise. I sometimes can almost promise if I get a really little kid, I would say that most of the time I can have them mainstreamed by the time they need to go to school. I can not say that for an older child. My granddaughter is 11 now. She is still impaired because I didn't get started on a lot of these things—it took me a long time to really find out all the things I've learned that needed to be done. But she continues to improve and it's always worth making this Herculean effort to do everything we can to make them as well as possible. And though we can't always promise that we will be able to completely turn them around, we can pretty much promise that we can always make them a lot better. It stands to reason that if a child is sick, and their guts are inflamed, and they're not taking in their food—we need to help them with that no matter what. So yes, there's always hope and we never stop trying.

So could you please summarize for us the order you feel optimal in which we need to address the physiological issues?

Yes. I would say that number one is a restrictive diet. And some of the kids who are not able to respond, no matter how conscientious the parents are to the gluten-free/casein-free diet, may need to go onto a more restrictive diet, the Specific Carbohydrate Diet. This has brought some tough "gut kids" around marvelously and some people are really big proponents of this diet. So I repeat again that the primary task in dealing with the physiological issues our children have is a really conscientious restrictive diet. If possible, I advise the whole family to go on this kind of diet. It's good for everybody, and if other kids are eating pizza and ice cream, it's cruel to do that in front of the child with autism because we all like those things.

I would also advise the parents not to go do tests and waste your money to see if you're that unusual family who can get away without giving your kids the diet—it's extremely rare. It's just worth it to go ahead and give the child a really good trial of a restrictive diet.

Second, giving them vitamins and enzymes and probiotics that they need to help their gut heal and to help the nutrition.

Third, avoid toxins, chelate to get rid of the toxins that have accumulated in the body, keep the body healthy while you're doing this. And then if we need to, we investigate the viral situation and find they may need antivirals.

So this is my healing pathway: the restrictive diet, healing the gut, giving the nutrients, balancing the metabolism, detoxifying, and antiviral medication if necessary.

What do you feel is the most important take-home message for a parent of a young, newly diagnosed child or the parent of an older child who has just starting their journey on a biomedical approach?

I think a positive attitude toward the kind of restrictions and the kind of effort that has to be made—it's extremely difficult for the parents to change their whole eating patterns--their whole life--to keep these kids from being poisoned. But if I can just stress to the parent, it's not forever, it's for right now to get them well, because they are medically sick kids. Their guts have to be healed. We have to nourish them so that the nourishment can go to the brain and to the rest of body and keep them healthy. So I would say the main thing is to be willing to do that first, do what's necessary to get the gut healed, do the diet—it's hard work, but it's worth it. After that, the other things are easier and will come naturally.

We would like you to reiterate the 11 tests that you mentioned earlier.

Sure, and I suggest you take the list with you to the doctor and try to find a doctor who is willing to do these tests to the extent that you can afford them. It's not cheap and the insurance companies will not help you too much for the testing, but let me give the list of what I do when I evaluate a child with autism:

1) A 90-food IGg Antibodies Hypersensitivity test. These are not true allergies in the sense that you have an anaphylactic-like reaction to penicillin or eggs or seafood or something. The gut builds up hypersensitivity, the kids eat the same things everyday and the gut doesn't like that—it likes variety.

2) Hair Elements that checks for toxicities to see what the toxins do to the minerals in the body (do not order the toxics test).

3) Comprehensive stool analysis with parisitology. Always get the parisitology in there because these kids put everything in their mouths and a lot of them do have parasites that need to be treated.

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4) 40 - Amino Acid analysis. The peptides break down into the amino acids that are the precursors to neurotransmitters in the brain and regulate mood, behaviors, and brain function.

5) Homocysteine is an important marker for the methylation and folate cycle.

6) The RBC Minerals/Elements give us an important indication of the toxins and mineral levels inside the cells of the body.

7) Vitamin panel. This checks to see the status of Vitamin A, E, beta carotene, and so on. We need to replace those essential antioxidant levels.

8) Fatty acid analysis. Most kids are short on their good omega-3s and omega-6s. We don't want bad fats. Don't fry foods. Don't let your kids eat chips. All chips are fried. The food, the fat that comes in chips, coats the cell membranes so that the nutrients can't get in. So many kids live on chips. Cut out the chips, cut out the sugar.

9) Urine organic acid or Organix at Metamatrix gives you the most information. That will tell you whether your child has a yeast infection, clostridium infection, and it will give you an indication of many of the main metabolic deficiencies that the kids have and the nutrients they need.

10) Immune viral panel, called the Premier Autism Panel at Immunosciences Lab. This consists of 17 different tests. It is important to check all the immunoglobulins, streptococcyl peptides, gliadin and casein, antibodies to fibrillarin which indicates that some kids are allergic to mercury, dipeptidylpeptidase (DPP IV) gives you an indication of whether your children needs enzymes, anti-myelin basic protein, anti-neurofilament antibodies, (autoimmune indicators), cellular metallothionein, natural killer cell activity, measles antibodies, and comprehensive antiviral screen consisting of varicella, cytomegalovirus (CMV), Epstein-Barr, and Herpes 1, 2, and HHV6.

11) Basic lab work that all labs do and insurance usually covers: Complete blood count, chemistry panel, iron, and thyroid.

Note from Dr. McCandless

The above listed tests are for a full initial evaluation. Six of the above tests are in the ION Panel from Metametrix, and as a panel you save and get maximum information. However, if a parent is on a limited budget and cannot do all these tests at one time, below I suggest the tests for most children in order of priority and by category. There may be cases where homocysteine, vitamin panel, and fatty acid analysis are important in the beginning, but they can often wait for later testing to "tweak" your nutrient program.

<u>General</u>

1) Metametrix Organix (urine organic acid analysis)
2) CBC, Chem Panel, Thyroid Panel (any lab)
3) Doctor's Data Comprehensive Stool Analysis #2
4) Metametrix Amino Acid Analysis (40 not 20)

<u>When already stabilized on restrictive diet</u>

5) Metametrix 90-Food IgG Hypersensitivities

<u>When contemplating chelation</u>

6) Doctor's Data RBC Elements (not whole blood)
7) Doctor's Data Hair Elements (not toxics)
8) Immunosciences Cellular Metallothionein Test

<u>Viral/Immune Testing</u>

9) If you cannot afford the full Immunosciences Premier Autism Panel (which includes all of these as well as the Metallothionein) do the Comprehensive Viral Panel #3, Rubeola IgG Antibodies, and Immunglobulins IgG, IgM, IgA).

For more detailed information on these and other topics, including causation theories, current research with multiple references, and additional treatment approaches, please see *Children with Starving Brains, www.starvingbrains.com.*

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