A Special Interview with Dr. David Ayoub
By Dr. Mercola

DA: Dr. David Ayoub
DM: Dr. Joseph Mercola, DO

DM: Welcome everyone. Today, I’m with Dr. David Ayoub who is a radiologist and a physician. Who actually was a patient of mine a number of years ago and that and some other interest have motivated him to become one of the experts in a specialized area of vaccines which is the additives and the preservatives that are being used. Dr. Ayoub was a presenter at the National Vaccine Information Center Conference in Washington D.C. last year. When I heard him, I was really thrilled and amazed at some of the information that he shared regarding the use of aluminum as an adjuvant. It is his belief and I’ll let him share the specifics in a moment but has believed primarily that aluminum can be actually more toxic than the mercury and this is in part related to the quantity of aluminum that’s in the vaccines. So it’s clearly, as I’m sure you’ll agree after listening to his information, a significant issue and something that we ought to be concerned about. So welcome Dr. Ayoub.

DA: Thank you Dr. Mercola. It’s nice to talk with you again.

DM: Yes, indeed. So, I’m wondering if you could start the discussion with how you first became aware of this and what these whole issue of aluminum vaccine and some of the possible adverse health effects it might have.

DA: I got started; my interest initially was similar to everyone else’s. We were very concerned about thimerosal and mercury in vaccines and I’ve been attending several of the autism conference that featured physicians that were highlighting some of the dangers of mercury. It was about the time when mercury was being removed from the routine childhood vaccines. A couple of converging episodes or actually encounters really heightened my interest in aluminum.

First of all, and I think what doctors should remember is you always listen to the patients first. I’ve been in the community a few years and I’ve made several friends, parents of autistic children and what the parents were saying over and over again is that we look at our children’s heavy metal toxicity profiles typically hair analysis or a post provocative urine heavy metal profiles. But they were seeing a lot of aluminum. They want to know what it meant.

Number two, I happen to visit a nutritionist down in Southern Illinois who is a very well respected nutritionist who deals with among other things, industrial aluminum toxicity and I spent a day in his office and he showed me some profiles, hair toxicity profiles of
children, middle school that had ADHD. In fact, his estimate is that 90% of the kids in the school had developed ADHD in one year. He showed me hair analysis that had aluminum absolutely off the chart and he was able to pinpoint this to the time in which they were exposed to basically ad lib use of Capri Sun drink which was given by one of the local distributors or manufacturers and these kids were drinking this all day long and high contents of a soluble aluminum. And I thought that was pretty impressive and of course ADHD is a significant comorbidity in autistic children.

And the third thing was really a pilot study I did with Dr. Usman who is a physician in the Chicago suburbs who is treating autism biomedically. She allowed me to look over some of the records of the patients who have had heavy metal testing and I wanted to quantify what percentage of children had evidence of high aluminum burdens whether it was hair analysis or whether it was post provoked urinary metals or even a more modern technique, urinary porphyrin testing, all of those to a different degree will give an estimate of body aluminum burden. And I presented that at one of the think tanks a few years ago. And we found just an enormously high percentage of children with autism who had very high aluminum burdens.

So those three combinations and of course since then, we know that mercury has been not eliminated but reduced significantly in vaccines and autism rates increased and the aluminum in vaccines have increased. So, I think a lot of people besides myself are now really rethinking the issue of what role mercury had or has and is it something else besides mercury or MMR. So I think there’s a lot more interest now in some of the other vaccine components than there was initially.

**DM:** Excellent. Can you explain to our listeners why aluminum is introduced into the vaccine to begin with?

**DA:** Well, I can tell you what they say. I’m not sure it makes sense but what is being said by vaccinologists or vaccine developers really since the mid-20’s aluminum was used to try to boost the host immune response to the antigen that’s injected into the child or the recipient of the vaccine. In other words, the antigen is what the body responds to to make antibodies and by boosting the immune response, you can use a smaller amount of antigen or make a smaller shot. Make a less expensive vaccine and have a more reliable vaccine response that is a higher titer level of antibodies. But really, even in modern literature, how this happens exactly is still a bit of a mystery, even though there are some opinions on why this boosts the immune response. It hasn’t always been a consistent finding. Recent development or one of the more recent vaccines to be developed was the HPV vaccines and there are a couple of studies that found that the aluminum adjuvant has absolutely no difference in the immune response. And there are several scattered studies going back to the DTaP vaccine during its development. So we really don’t know with a degree of confidence that the aluminum adjuvant is absolutely necessary.

**DM:** Interesting. So, aluminum is essentially by many considered to be heavy metal. Would you consider it heavy metal or how do you classify aluminum?
DA: Well, based on the Periodic Table, it's just shy of a heavy metal. So it's called a light metal. But nonetheless, it is in the metal grouping and it's a common compound. And one of the things you hear by so-called experts who try to allay people’s fears about aluminum and say, “Well, you know, aluminum makes up 8% of our earth’s crust.” It’s in the in the air. It’s in the soil. It’s in the water and so forth. And that may very well be true. It is a very common substance outside of the body but it has absolutely no biological role in the body. It is not a necessary or essential for any biological function in any animal or plant for that matter. So it probably belongs outside of the body if there is no role for it physiologically, biochemically so to speak. But the things that we know about the basics of aluminum going back well probably nearly two centuries now, is it’s a poison.

In the 1800’s in Europe, aluminum was used in some products, cooking ware, and baking products and so forth and it was banned across Europe because it was known to be a poison. And in fact, if you…very interesting, there was a book written in 1920’s by a dentist names Charles Betts. A fascinating story about aluminum poisoning via predominantly baking powder that was used. This went through, as we’ve seen recently with vaccines, this went through regulatory hearings but this time with the Federal Trade Commission and he wrote a book on that and there was extensive experience with really severe toxicity. Everything from cookware. In fact, he himself was poisoned. He got aluminum poisoning and he made the diagnosis from his coffee cup. But you had experts then, toxicologists then, were stating in Federal hearings that aluminum salts which are exactly what we’re using in vaccines were a poison no matter how they’re injected whether it’s in use intravenously or orally, or subcutaneously. But, yet about the same time these hearing were held, aluminum fell into a vial of vaccines somewhere in a laboratory and it’s been used every since in vaccines. So it’s pretty perplexing of something with a reasonably long track record of being a toxin to humans and undergoing Federal hearings for that matter turned around and was used for vaccine adjuvants.

DM: Well, it’s perplexing but I guess in many ways not surprising. So, there are a large number of vaccines out there and I’m wondering if you… I suspect you’ve looked at them all and if you could explain to our listeners which vaccines have the most aluminum and sort of prioritize the danger from that perspective.

DA: I can make you the list. It’s not in all the vaccines and generally, you will find it in the hepatitis B vaccines. You will find it in the DTaP or diphtheria, tetanus, pertussis vaccine. And of course, any vaccine that has a combination. There is more and more combination of vaccines. Hib vaccine, Haemophilus B influenza, pneumococcal vaccine, hepatitis A vaccine, and the Gardasil vaccine which is used here. I don’t believe the H1N1 formulas here had contained aluminum but overseas and other countries, those formularies were made with aluminum adjuvants.

And, the amount in the vaccines varies and this is kind of interesting, it’s a little bit dependent on how it’s distributed in the body. When you think about it, when you get a
vaccine, and it’s injected into a muscle typically, that aluminum is going to stay at the injection site for a period of time. In fact, if they never left the injection site, it would only be potentially toxic to the arm or the leg or the buttock that this was injected in. So you can’t necessarily go by the microgram doses because if its released rapidly in the system, it can cause rapid rises in blood aluminum levels and a small dose is released quickly maybe much more toxic than a large dose which is held to the tissue at the injection site. But that being said, the combination vaccine Pediarix, is the winner. And that has 850 mcg of elemental aluminum and it ranges all the way down to Prevnar which is 125 mcg of aluminum. So we’re really talking about a typically 200 to 400 mcg as an average per vaccine. Of course, kids get multiple vaccines.

Let me put it in perspective. When you think about mercury, we we’re getting up to 12.5 and 25 mcg per shot. And I think on the days of injection, and this is before they took it out of the early childhood vaccines, kids were getting up to 60, 70 mcg per day. _ getting over a milligram of aluminum.

**DM:** Which is a thousand micrograms, for those who are not familiar with the metric system.

**DA:** That’s right. So, you’re talking about a concentration or a dosage that’s 10 to 20 times higher than mercury. I know that mercury is on a by weight basis is more toxic than aluminum but I really don’t believe that it’s 20 times…necessarily 20 times more toxic. So, yes, aluminum is in products that we see all the time but we don’t inject it in ourselves and these kids are getting an awful large dose of aluminum in these vaccines.

**DM:** You had mentioned that it wasn’t in the H1N1 vaccine but I thought it was in the flu vaccines and in fact was one of the reasons why many had advocated not getting the flu vaccine because of the aluminum content and the increased risk for diseases like Alzheimer’s over time because you were getting it every year.

**DA:** It is not in the influenza preparations, the routine flu shot you mean?

**DM:** Right, the routine.

**DA:** No.

**DM:** It’s not in there. Okay. I misunderstood.

**DA:** It’s not listed in _. I will tell you this, aluminum contaminates about every biological product we have. So you have to differentiate the contents from the labeled contents. And for example, I saw a data that has been unpublished in one laboratory in the United States looked at the aluminum content in vaccines and compared it to the labeled amount it’s supposed to be in and they found, if I recall, up to five to six times more aluminum than the label which is sad. Obviously, that seems like that would be our regulatory violation but they don’t have to list this if it’s a contaminant. And believe me,
there are many, many things in the vaccines that are known to be contaminated with aluminum. So may not know.

DM: How does it get in there? Are they using aluminum tools to manufacture the vaccines and it was just picked up in the manufacturing process and deposited it in there?

DA: Yeah, you know, that’s a very funny question. There was a study done and I won’t be able to cite the author without having a paper in front of me but there was a lot of work on total parenteral nutrition or I.V. drugs being contaminated with aluminum and a lot of pediatricians, researchers had looked at this pretty carefully. And they went through the ingredients of these medicinal and they added up the aluminum in the individual components. In other words, they purchased the individual components, calculated the aluminum and then compared that to the industrial finished product and they found multiple fold higher amount of aluminum in the finished product and they concluded that this is a contaminant that is introduced into the drug during the manufacturing process but not from a combination of contaminant components of that medication.

DM: Or the raw materials.

DA: That’s right. The raw materials didn’t add up to the total.

DM: Interesting. At this point, to the best of your knowledge, most likely the true amount that’s in these vaccines, I mean, the high ones maybe 500%, 600% more than listed because no one’s really done a definitive published trial or study as to what these numbers are. So they’re 1 mg or 1000 mcg, you mentioned, maybe as high as 5000 mcg or 6000 mcg.

DA: Well, you know, there had been a couple of studies that looked at this and these are old studies and I think one of them was done in Europe or Sweden and there was a fairly good match between what they measured and what was in the vaccine. What I saw across my desk about a year ago, was a departure from the brief papers that had been published. So I don’t know whether that represents a laxity in the quality in the manufacturing standards. Gosh, who knows, we’ve seen a lot of problems of manufacturing particularly in China in healthcare products and toys and so forth. So who knows, you know, the degree of regulatory breakdown in all these manufacturers of various subcomponents.

DM: So has it been your observation that this amount has changed over the last few years?

DA: Well, there is no question. If you even take the vaccine labeling literally, there has been a dramatic rise in the number of shots we give kids. But also increase in accumulative aluminum doses. I looked through the PDR’s (Physician Desk Reference) going back to the 70’s. To try to tabulate a chronological pattern of aluminum exposure
to kids and the early PDR’s actually didn’t label the aluminum contents. So, it was a little hard to know in the 70’s what kids were getting but I presumed it didn’t change much from the point they started correctly labeling the vials.

But based on a number of shots, in the 70’s and actually through about the mid-80’s until the hep B vaccine, kids were getting four vaccines and this was the first 18 months of life. They’re getting four shots with aluminum and currently, they get 17 shots that contain aluminum. So we’ve had a quadrupling of the number of shots. Based on the calculations I did on the milligram dose, is it’s been just a little bit over the doubling of the aluminum exposure. So yes, it has increased and even when mercury was reduced in the early 2000’s, aluminum was going up. So it was still increasing. And that has actually some pretty significant implications. When you think about this maybe getting a little bit ahead of our discussion but aluminum does impair the body’s ability to excrete mercury and impairs the substance known as glutathione. And if you increase the amount of aluminum, you actually make the little bit of mercury that you do get much more toxic because the body cannot handle it. So in theory now, when kids who weren’t exposed to the mercury and the DTaP and the Hib and the hep B, you increase the aluminum. And now, you reintroduce flu shots that have 25 mcg of mercury. That mercury now with a kid who is loaded with aluminum, might be much more dangerous because it is going to dwell in the body in a much longer period of time. The body can’t handle it as well.

DM: Well, and mercury is also not just in vaccines. It’s consumed frequently as a contaminant in fish and of course, in amalgam fillings. So there is other ways that mercury can enter a child’s body. Now, had there been, to your knowledge, any kind of regulatory guidelines that address the amount of aluminum that is used in vaccines?

DA: Well, there are some guidelines. And, in fact, the only really comment I found that talks about the restriction, the limits of aluminum that can be used in vaccines and other injectible biologicals comes under what’s called __ by the Food and Drug Administration. They state that the maximum amount of allowable elemental aluminum is 850 mcg per vaccine. When I read that, as opposed to let’s say mercury, the limitations of mercury or lead for example aren’t just microgram doses or a weighted…of course alcohols would be toxic to an infant and, you know, a shot about to adult wouldn’t feel…so when you think about how we regulate poisons, its really the size of the recipient, it’s a critical role. Not so much what the exposure is but what body weight this toxin is being distributed in. And they didn’t say that. And they didn’t really make any allowances for multiple shots in one day which obviously occurs in the vaccines.

So when I dug a little deeper, I found an admission in a paper published in Vaccine which was one of the peer-reviewed journals covering the vaccine industry and Norman Baylor who works at the FDA and others have clarified the regulatory guidelines and they stated that this dose, this limitation of 850 mcg was used based on the effectiveness of the adjuvant role of aluminum and nothing to do with limitations based on safety whatsoever.
So, the bottom line is even though vaccine safety or vaccine advocates who say this is a safe dose and they cite this law as being the regulatory law and the law we’re abiding by it the fact that is has nothing to do with safety whatsoever. So no, the reality is there are no Federal regulatory guidelines on aluminum content in vaccines based on safety data, none, and whatsoever.

**DM:** How does aluminum distribute in the body once you either get it from a vaccine or exposed to it through cooking utensils or antiperspirants, how does it distribute?

**DA:** I’ll tell you what, it’s surprisingly an incredibly accessible metal. There are no barriers to aluminum whether you inject it, you inhale it, ingest it, absolutely no barriers. It is transported within the body through an active transport system. It sort of steals away the iron transport system. So it will displace iron from the carrier molecules and it will enter any cell, it will pass the blood brain barrier. It certainly passes the placenta barrier from mother to infant. And in fact, once in a cell, it can go to any component of the cell whether it’s the mitochondria which are the battery of the cell going to the nuclear components. It goes right into the DNA, binds to DNA strains and so forth. So there is absolutely no barrier to aluminum whatsoever. That’s obviously a problematic, not having really much of an internal roadblock so to speak or a way to eliminate it. It robs. It steals kind of piggybacks onto the carrier system of iron. So it is very efficiently distributed throughout the body.

If you think about it, there’s a couple of ways in trying to understand how you can get your or grasp the potential toxicity of aluminum distribution in the body. There is really two ways to think about it and it’s a traditional way I think toxicologists think about exposure to toxins.

You can measure aluminum in blood just like you can measure alcohol in blood or mercury in blood or lead in blood. But that really doesn’t estimate or it might estimate but it doesn’t give you an accurate picture necessarily of what’s distributed to solid organs like brain, heart, and muscle and so forth. So, a blood level has limitations but it’s certainly kind of a proxy to exposure. You get more information if you’re trying to define acute exposure risks. And we did, for example, a nephrologist or kidney specialist is probably the most knowledgeable subspecialist in medicine on aluminum poisoning. Dialysis patients are susceptible to getting aluminum toxicity or kidney function and aluminum isn’t dialyzed so they get exposure to aluminum in the environment and they can have high blood aluminum. So, in a dialysis patient it would be reasonably accurate to draw a blood level. And there is a fair amount of data.

Aluminum literature in premature babies and infants TPN or total parenteral nutrition. That was a fairly common event in children and infants who had to have I.V. feedings for a period of time, short term to intermediate term and so, there is a fair amount of data on blood aluminum levels in those children related to toxicity and I think if you look at the vaccines and you have to do something very simple. You just divide the amount of aluminum injected into an infant whether it’s a newborn hep B vaccine or a two-month child or a 12-month child or whatever. You take the aluminum that’s injected and you
divide it by the blood volume and you can get an estimate of what your maximum blood level would be. And you know from all of these studies that have been done, when you start getting to about a concentration of 100 mcg per liter in the blood, you pretty much have toxicity. That’s pretty much a given. If you do so and I did this calculation during infancy in a newborn based on an average of blood aluminum in a 50 percentile infant will have up to a thousand micrograms per liter if that aluminum was released instantaneously. And that’s tenfold higher than what aluminum poisoning would be defined as.

At two months, it’s off the chart. It’s 3.6 mg per liter. So 36 times what’s known to be toxic. Of course we know that the aluminum doesn’t disassociate completely instantaneously. There are very few studies that kind of measure blood levels over a period of time after a vaccine but experimental studies done by the researchers of Purdue who had done a basic work of adjuvants. It showed that the aluminum disassociates from the antigen completely by 15 minutes. And once it’s disassociated, it is free to be absorbed pretty quickly. And I think as a doctor, we may have injected lidocaine or epinephrine and somebody is having, “I’ve done this for a contrast allergies.” And when you inject something in the muscle, it gets in the system very, very quickly. So it’s not surprising you have pretty quick peak of blood levels after aluminum injected vaccine.

It would be a pretty necessary study you would think since we’re injecting this in kids. Is to measure peak levels, hours, days, weeks after a vaccine. And oddly enough, there has only been one study that’s never looked at this and was published in the Spanish literature many, many years ago in a dialysis population and just with one vaccine in adult dialysis patients they had levels and some of those patients exceeded 100 mcg per liter. I think it was around day five or day seven after the vaccine. So, even though it certainly doesn’t replicate the situation in children because these were adults but we do know that it definitely is released over a period of a few days and the results are quite high.

**DM:** Now, have you looked at aluminum sources, aluminum intakes from other sources like particularly the antiperspirants and do you have an idea of the exposure that the average person might have relative to vaccines?

**DA:** There is not enough data on vaccines per se to even be prepared with regard to the literature but the oral literature, there is a fair amount of work done in oral aluminum exposure because you know the toxicities in the dialysis patients were from oral phosphate titers. So what are the ways to look at the...put things in perspective is look at the aluminum, those in vaccine compared to oral toxicity. We only absorb about 1% of the oral aluminum that we take in. And there is a great amount of variation from people to people. For example, if you take aluminum exposure with ascorbates, vitamin C for example, that’s why they tell you not to take vitamin C in an empty stomach because that enhances aluminum absorption or citric acid which is in the Capri Sun drink which enhances aluminum solubility. The vaccine dose completely blow away
what’s known to be toxic oral routes and it needs that oral phosphate binder studies and so forth.

**DM:** When you’re talking about the oral phosphate binder, would that be something like aluminum hydroxide that’s in antacids?

**DA:** Right. I don’t have much data. I read quite a bit of the data in the literature but there is really as far as underarm deodorants for example, I think the UK researcher Chris Exley I believe is his name, did some interesting studies on breast cancer and they sampled the breast in four quadrants in women that were having mastectomies and they found high concentration of aluminum in the upper outer quadrant. And there was actually aluminum in the breast cancers. And of course upper outer quadrant is closest to where you would apply your underarm deodorant. The implication of his research was that this was being taken up by the cancer and said it might be cancer inducing because actually aluminum is a carcinogen. There are over a hundred studies showing that it causes cancer in animals by injection. So we don’t know if __.

**DM:** Has your research help you to differentiate all between the different type of aluminum salts that are used, I know that this is a tangent but I think it’s an important one. But the ones, the salts that are using these antiperspirants, the conventional ones use aluminum salts that are well documented to be dangerous and should be avoided at all cost but many of the health food stores have these alum preparations that are purported to be safe and don’t absorb aluminum but there is some concern that they may provide aluminum exposures even though they’re thought to be safe by the people selling them in health food stores.

**DA:** Alum, I think that’s aluminum sulfate. At least from an injectable preparation that is just as toxic as any other aluminum. As far as I know, aluminum salts is an aluminum salt. There is a difference in the biokinetics and how it redistributes from injection sites. And maybe there is a different role in skin absorption rates. I just don’t know that.

**DM:** Okay, thanks. All of this concern about aluminum relates to the fact that it has some toxicity and we’ve talked about how it distributes but what have you noticed or what are your observations, you referenced this study that the breast cancers maybe influenced but what other types of toxicities. I think a common one that most people associate with is Alzheimer’s or neurological degeneration.

**DA:** Yes, you know I did partly because I had a personal interest as Alzheimer is exploding and as we reach our middle ages, we think a little bit about our future and since I was researching aluminum, I went ahead and pulled the Alzheimer’s literature. I think that the general belief in the medical community and the healthcare consumption community is that, that link has been kind of _ or is not very important but that’s not really what the science says. There does appear to be a very strong body of literature linking Alzheimer’s to aluminum exposure or aluminum in the brain in an animal model but also the rabbit model and basically it appears in these studies that have just been published even up to this year. Research has not stopped at all on that association but
the animal model is impressive. They’ve replicated virtually all of the brain changes in Alzheimer’s in experimental models that are exposed to aluminum. So it looks like its one of the things in the environment. Certainly, not the only thing but its certainly one of the things in the environment that can _. In fact, the dentist Dr. Betts had commented that in his book in 1927. He described very perfectly. His description of exposures in industrial workers and basically is sounds exactly what would we define as Alzheimer’s today.

DM: So very good reasons to limit the aluminum exposure as much as possible because there’s absolutely no benefit to it. It’s just only a toxin just like mercury. There are no known biological role only damages.

DA: No, absolutely not. But if you just looked and I think the first thing that people did Sally Bernard for example, those that raise questions about mercury and vaccines in the first place, is before they did any research, they just picked up Manufacturing Safety Data Sheet or MSDS. And this is a sheet that manufacturers that work with a product that contains aluminum have to provide information to their workers around this in case there is a toxicity in the workplace or exposure in the workplace. And this is based on a lot of science so you can kind of summarize a lot science very quickly and the read the MSDS without really having to get into the peer-reviewed literature and get a good idea of the toxicity or the profile is. And if you allow me to just read you a typical MSDS. And this is on aluminum. It causes bone disease known as osteomalacia which is basically a decalcification, a poor development of bone. It can cause muscle weakness or fatigue, it causes anemia, hallucinations, visual and auditory _ hallucinations, speech and language impairment. It includes dysarthria, stuttering, stammering, aphasia, and mutism. It causes seizures, motor disturbances, tremors, make a lot of jerks, convulsions, motor aphasia. It causes dementia, _, depression, clouded sensorium. In severe cases, coma and death. Its pretty serious stuff and this describes comorbidities we’re seeing in all of our populations from kids to adults. So this is a pretty kind of a shocking longer list of potential toxicity.

DM: Well, in documenting one of the major concerns is dementia. But it doesn’t mention some of the newer appreciations which I like you comment on which is the association with autism. You know, we have an explosion of autism in the Western world. I think, for decades, the incidence was like one in 10,000. Now, it’s down to 1 in 100. Literally a hundred fold increase over the last 20 years or so, and it continues. Every study that looks at it seems to be progressively increasing to the point where we have it down to 1 in 20 before we know it. So I’m wondering what observations or links you’ve seen between aluminum and autism.

DA: There is actually quite a few. First thing I did is I pulled within the literature like the published cases of aluminum toxicity in childhood, particularly infancy in childhood. To compare to see whether that old toxic profile and known aluminum toxicity has a similarity to what we’re seeing in autistic kids or for example, any kids with other medical conditions in early infancy. It could be vaccine related.
And I found, you know, surprisingly, aluminum salt exposures, I found 85 cases in the peer-reviewed literature that those were about equally divided in cases of kids with renal failure and the other half being cases with normal renal function. I made that distinction because some regulators might say that you don’t get aluminum poisoning unless you have renal impairment and that’s not what I found whatsoever. There were plenty of cases of toxicity in infancy with non-impaired renal functions. So it happens. And I collated all of these cases and let me just kind of go through a brief list of the very typical features of aluminum toxicity in early infancy.

One of the most common presentations was developmental delay. Microcephaly, now you think about autism kind of think that most of the children with autism have big heads but actually, an equal number of children have smaller heads for age as well. So, it’s not always a large head. Seizures, in over half of the cases of aluminum toxicity, we see seizures. Hypotonia or floppy muscle tone, we virtually know that autistic children a hundred percent of children have some sort of motor malfunction. And it really should be a core part of the diagnosis for autism but its not but it’s very common.

Dyskinesias, gait problems, myoclonus, lethargy and one of the very common problems you see in aluminum toxicity are regression of speech or difficulty in speech. It’s another very common observation that we see in autism. So, yes, there are a fair number of similarities. When they broke this down, there were, you know, even when you start looking at some of the biochemical abnormalities in autism and the biochemical abnormalities with aluminum toxicity you see some really striking similarities.

Aluminum is an autonomic toxin. It affects both the sympathetic and the parasympathetic nervous system and that’s the very complicated type of our nervous system which controls functions that we don’t have conscious control over such as motility of the intestine and sphincter in part and dilate and so forth and heart rate. And that profile, it is very common in autism, autonomic dysfunction is very common. Mitochondrial dysfunction is a real core problem in aluminum exposure and its very, very common in autistic children. ADHD, there are dozens of papers linking aluminum toxicity to Attention Deficit Disorders. Most of those studies were published in the 80’s at the time we’re discovering the link between Alzheimer’s. So these studies appeared in the psychology and psychiatry literature and really kind of fell out of favor of just people got tired researching but those associations have never been dismissed.

Anemia is common in autistic children and of course _ aluminum toxicity. Melatonin, we know that there is a lot of sleep disorders in autistic and non-autistic children alike with the exact step of impairment of aluminum. It’s a complicated biochemical process. But the aluminum impairment and the impairments we see in autism are a perfect match. Obviously, there are a lot of things that affect particular biochemical pathways but it’s in particular a striking similarity.

The neuropathology, we know that the cerebellum is commonly targeted in aluminum toxicity. It’s the part of the brain that actually controls a great deal but you and I learned in medical school, Dr. Mercola, this controls and kind of balance and coordination
before it controls a lot more than that and this is one of the target areas for aluminum toxicity and a kind of manifestation of problems in autistic children.

I want to punctuate that because I don’t think in the basic research for autism, I don’t really think that we’ve emphasized enough cerebellar dysfunction. Let me read you from this list and its pertinent because aluminum really loves to attack the Purkinje cells in the __. Some of the impairment you get from generalized dysfunction of the cerebellum. And I’ll ask you, does this sound familiar to you; inattentiveness, distractibility, hyperactivity, compulsive and ritualistic behaviors, unpredictability, anxiety, agitation, panic, self-stimulation, paranoia, hallucinations, anger, aggression, irritability, and this is half the list. This is a list generated from cerebellar disorders from the literature it goes back through decades and decades and this is what they observe in cerebellar dysfunction. We have a toxin here. Now, mercury targets the cerebellum too no question but mercury actually spares the Purkinje cells which are the exact cells that aluminum targets. So I find it a pretty impressive biological plausibility if you will.

DM: That’s interesting. I want to thank you for providing all of us with this important information about aluminum. It just adds another nail in the coffin from my perspective of the reasons that one needs to be concerned about selecting and using vaccines as an approach to protect and provide safety for themselves or their family with respect to infectious diseases. I just think there is, in most cases, for most people far better alternatives and less toxic and with side effects. I mean, it just doesn’t make sense to be using these dangerous approaches that have well documented and observed side effects.

I guess maybe one just last comment. Well, Dr. Shiv Chopra, who also spoke at the conference, was particularly concerned about the route of administration. That almost all vaccines are administered through injection. He was concerned about the proteins and some of the other issues that were...particularly proteins that were administered that way that might be causing more significant side effects because it was a route of introduction that really we weren’t designed for. So I’m wondering from your perspective or view, if there is a significant difference between administering the aluminum through a vaccine versus receiving...aside from the absorption assuming you’d make those similar...assuming the same route of swallowing it orally.

DA: Well, you know, that’s a good question, superficially, I would say, no. The toxicity profiles are very, very similar. Now, I would actually, I could divide those toxicity cases I collated and look at it more carefully. But, at the top of my head, on the surface, they’re kind of very similar.

DM: Okay that would have made sense. Alright, again, I thank you for the information and we’ll be providing people with some of your written comments on this so they can read that also and certainly a transcript of our interview. So thank you very much.

DA: Thank you. It’s been a pleasure.