



Health & Wellness



Aluminum and NeuroToxicity



Dr. Kate Thomsen and Silky

And I thought we were in the Age of Aquarius!! But Christopher Exley PhD has a different idea. A brilliant highly published researcher in the UK, Dr. Exley is convinced we are living in "the Age of Aluminum". Before 1889 aluminum was just hanging out in the rocks – existing with its partners silica and iron as bauxite. There's a lot of it though. Aluminum is the third most abundant element in the Earth's crust. (First is oxygen and second is silicon). Apparently we have just left the "Silicon Age" (semiconductors/information age) from late 20th century to early 21st century.

Once we learned how to get the aluminum out of bauxite we use it to make: trains, planes and automobiles, power lines, staples, bike frames, ladders, mail boxes, patio furniture, screen doors, computer parts, car rims, golf clubs, fencing, faucets, soda cans, pots, pans and tin foil. And those are just the top of the list. Aluminum is inexpensive, strong, lightweight, easy to combine with other materials, resistant to heat and corrosion and it conducts electricity. Good thing Mother Nature gave us a lot of it and, as Professor Exley explains it, she recycled it with such efficiency that no biologically available aluminum had entered the living cycle. Aluminum has no biologic function in plants or animals. But since 1889, when man learned how to get aluminum out of bauxite, aluminum has snuck into living things. With the introduction of aluminum salts, acid rain, and intensive agribusiness, aluminum has been released into our environment so that we can eat it, breath it, apply it and inject it – unfortunately, at our peril.

The Professor takes a long look at the evolution of our planet and reminds us that when a new element enters the biological cycle, it has a negative impact initially. He cites oxygen and calcium, which were once quite toxic on the hot bubbling Earth but, through natural selection of the elements, became essential over time. But this was over a very, very long period of time. Aluminum may become an essential element to human life eons from now, but at this point in time, it appears to be in

its "negative impact" cycle. What's the evidence for this?

A neurodegenerative disease endemic to the Chamorro people of Guam in Micronesia was first noted in 1904. Variations in the features of paralysis and dementia in the condition earned it the name, Amyotrophic Lateral Sclerosis – parkinsonism-dementia complex (ALS-PDC). It became the leading cause of adult death between 1945 and 1956. Some researchers believe it was due to eating flour made of cycad tree seeds which contain a neurotoxin which became more toxic when washed multiple times with high aluminum containing water. Mice given pellets of the aluminum/toxin combo Cycad flour at the time showed behavioral changes and had brain and spinal cord pathology changes similar to the affected Chamorro people.

In 1943 a finely ground aluminum powder (McIntyre Powder) was used in Canada to prevent silicosis in miners. The aluminum dust was blown into the mine changing room before every shift. Usage of this practice stopped in 1980 after studies showed it provided no health benefit. Jim Hobbs was one of the exposed miners who later developed Parkinson's Disease. In 2011 his daughter, Janice Martell, created the McIntyre Powder Project. It was a database of miners and their health issues which showed that the miners had a somewhat increased risk of Alzheimer's and Motor neuron diseases compared to the general population. More recently Dr. Paul Demers used improved statistical methods and showed that miners exposed to McIntyre Powder were more likely to develop Parkinson's Disease. These workers are now being compensated through their Workplace Safety and Insurance Board.

A significant number of veterans of the Gulf War of 1991 were affected by a syndrome called "Gulf War Illness". Within that syndrome are a disproportionate number of veterans with Amyotrophic Lateral Sclerosis (ALS/Lou Gehrig's Disease) and other neurologic disorders. These disorders do not normally affect young men. Soldiers were given as many as 20 vaccines of various types in total and had other neurotoxic exposures. The Anthrax vaccine (containing an aluminum hydroxide and squalene adjuvant) has been implicated as one of the causes of GWI symptoms. A mouse model, using equivalent doses of the adjuvants was performed to test the theory. Behavioral testing of the mice and the types of damage in the mice brains coincided with similar neurologic damage in the GWI patients.

In Curacao 2001 a new cement-

lined pipe was installed to distribute distilled water to a dialysis center. The pipe leached calcium and aluminum from the cement mortar and exposed 27 patients. Ten of the patients died from acute encephalopathy (damaged brain) due to aluminum intoxication.

In 2007 a group of researchers in Australia led by JR Walton, studied rats chronically exposed to aluminum at human dietary levels and found some of the rats behaved with memory deficits. These rats also had some similar features of brain aluminum deposition seen in Alzheimer patients.

In 2017 Professor Exley examined the brains of 10 donors with Autism Spectrum Disorder. He was able to show that the aluminum content of brain tissue in these donors was consistently high – some of the highest levels in human brain tissue ever recorded. He reported that the aluminum was predominantly inside the inflammatory cells of the brain.

By this time research scientists have taught us that aluminum is a potent neurotoxin. It increases the permeability of the blood brain barrier, decreases utilization of glucose in the brain, affects neurotransmission, decreases antioxidant activity, and can induce neurofibrillary tangles (the hallmark of Alzheimer's). Aluminum is also a respiratory toxin.

The major ways to get aluminum in your body are: naturally in food (acidification of the soils have made it available for plant uptake); ingesting food with aluminum additives, drinking contaminated water, using personal care products (cosmetics, skin care, and antiperspirants) and using aluminum cooking utensils and food packaging. By far the largest sources of exposure are: pharmaceuticals (antacids, buffered analgesics, anti-ulceratives, anti-diarrheal drugs) and vaccines with aluminum adjuvants (HepB, Hib, Td, DTP). Uptake from your aluminum pan and deodorant pale in comparison.

It was during the diphtheria outbreak in the early 1900s that vaccine adjuvants were discovered. The efficacy of vaccines depends on the body being stimulated to make neutralizing antibodies to the infectious agent. Researchers were adding substances to experimental vaccines to better elicit these neutralizing antibodies. In 1926 Alexander Thomas Glenny, a British immunologist found that aluminum salts (alum) significantly increased the effectiveness of diphtheria toxin when injected into guinea pigs. Alum (potassium aluminum sulfate) is the most widely used human vaccine adjuvant, along with others like aluminum hydroxide, aluminum phosphate and mixed aluminum

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INTEGRATIVE AND HOLISTIC HEALTH AND WELLNESS

Aluminum Facts

- Routes of intake: food, water, inhalation, skin absorption, injections
- Body Stores 60% is in bone, 25% in the lung, 10% in muscle, 3% in liver, 1% in brain but is in all tissues and fluids of the body: placenta, fetus, milk, hair....
- Tissue aluminum concentration increases with age
- 95% of absorbed aluminum is excreted through the kidneys
- Aluminum production is classified as carcinogenic to humans by the IARC (International Agency for Research on Cancer)
- Occupational limits have been set in several countries; limits have been set for intake in foods and drinking water

Possible Exposures

- Aluminum powders: pigments and paints, fuel additives, explosives and propellants
- Aluminum oxides: food additives; in manufacture of abrasives, refractories, ceramics, electrical insulators, catalysts, paper, spark plugs, light bulbs, artificial gems, alloys, glass and heat resistant fibers
- Aluminum hydroxide: pharmaceutical (aluminum containing antacids and buffered aspirin) and personal care products (deodorant, toothpaste, lipstick...)
- Food related aluminum compounds: preservatives, fillers, coloring agents, anti-caking agents, emulsifiers and baking powders; soy based infant formulas
- Natural aluminum minerals (Bentonite, zeolite): water purification, sugar refining, brewing and paper industries

What To Do:

- Read labels!!!! Use the App: Think Dirty
- Avoid using high aluminum products and foods – especially antacids....
- Oral aluminum bioavailability is decreased by silicon-containing compounds
 - o Drink high silica water (Fuji, Agilis...) from glass bottles
 - o Make your own high silica water (Google it)
 - o Take BioSil, RegenMax or other silica supplement



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salts. Researchers still don't know how they actually cause this stronger immune reaction. As discussed earlier, aluminum has no role in biology and, once injected into the blood, the immune system has no script for what to do. The increasing vaccine schedule continues to add aluminum to the body burden of children with no long term safety data. Dr. Exley has shown that injected aluminum can find its way to the brain and it certainly does. The manufacturers, who have no liability, tell us it is safe – but how do they know? Aluminum researchers sent a FOIA request to the FDA, NIH and CDC asking for the data that shows that aluminum adjuvants are not harmful. They have gotten no response. Instead some of the brightest university aluminum researchers have lost their funding – including Dr. Exley. There are adjuvants that would be less toxic. Calcium phosphate would be a lot safer and seems to work well but has not been adopted by any manufacturer yet. As the prevalence of neurodegenerative diseases increase in this country (Alzheimer's, ALS, Parkinson's, MS...) we can either wait and see what happens to our kids when they get older or we can demand to have the aluminum taken out.

Science is always in flux. What we know now, we didn't know back then and what we will know in the future, we don't know now. Science is never settled – and Thank God for open minds or we'd be afraid to go too far away from home lest we fall off the flat earth.

We can always do things better. You don't have to throw the baby out with the bath water but you have to pay attention when it looks like an uncomfortable truth is emerging. Denial is not a river in Egypt. It is a barrier to progress. The sooner we understand we are living in a toxic soup, the sooner we can clean it up and be healthier for it. COVID may not even be such a virulent virus but given a world of chronically ill and toxic people and it takes advantage of our compromised state. That's what happens when we don't pay attention to the inconvenient truths.

Dr. Kate Thomsen's office for holistic health care is located in Pennington, NJ. She is trained in Family Medicine, and Board Certified in Integrative Medicine, and is an Institute for Functional Medicine Certified Practitioner. She has been practicing Functional Medicine for 23 years. For more information see www.drkatethomsen.com or call the office at 609-818-9700.