



# IMAGE AWARENESS WELLNESS INSTITUTE

## ALUMINUM TOXICITY

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### INTRODUCTION

Aluminum is the third most abundant element on earth after oxygen and silicon. It is the only abundant substance that the body does not use as a nutrient. Not only does the body not use aluminum, but it has a pronounced toxicity. Aluminum toxicity was rare prior to about 150 years ago because most of the aluminum in the earth's crust is bound to silicon, a very stable and inert combination.

Aluminum became useful when men learned to separate it from silicon. We live in what has been called the Aluminum Age. The metal is strong, durable, light and corrosion resistant. For this reason cars, planes, and boats are made of aluminum. The metal is used in electrical and hardware devices and housing materials and appliances.

More concerning is when the metal comes into contact with or incorporated into foods or beverages. Food is exposed to aluminum cookware, aluminum cans, and aluminum foil. Aluminum is used as a flocculant to remove impurities from drinking water and it is a common additive to processed foods. Some baking powders contain sodium aluminum phosphate resulting in widespread contamination of processed baked goods with aluminum. Aluminum is also found in cosmetics, antacids and other pharmaceutical products, and is added to

vaccines as an adjuvant to increase the immune response.

The widespread use of aluminum has resulted in increasing body burdens of the metal. This is a concern because aluminum has been known to be toxic to most life forms for over a century.

In 1911 William Gies reported on his concerns about the toxic effects of consuming aluminum salts in baking powders and food preservatives after seven years of research. He reported that the use of any aluminum compound in food was a dangerous practice. He pointed out that the organism cannot tolerate soluble aluminum without harmful consequences. He stated that aluminum should be excluded from food.

The toxicity of aluminum varies depending upon the form of alumi-

num, route of administration, and duration of exposure. Accumulation of aluminum poses health risks for those who can not remove it from the body efficiently. The groups most susceptible to aluminum poisoning are those with compromised kidney function, children under one year of age, and the elderly.

Toxic quantities of aluminum can be readily acquired from environmental exposures today.

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### BIOAVAILABILITY

Aluminum in the earth's crust is not highly bioavailable. Aluminum converts from a solid to a liquid when exposed to acidity or a high pH. Thus acid rain can dissolve aluminum and disperse it through water to plants and animals.

Manufactured aluminum compounds used as food additives also have a higher bioavailability than naturally occurring aluminum in the earth's crust.

In the 1880's aluminum salts were added to water to clarify it. Sometimes this actually decreases the total amount of aluminum in the water, but



it can also increase the form of aluminum most readily absorbed into the human body.

The addition of fluoride to drinking water has aggravated the aluminum problem. Fluoroaluminates are extremely toxic. They readily cross the blood brain barrier. In rats chronic exposure to these substances leads to damage of brain cells similar to Alzheimer's.

The presence of silicon in the earth's crust decreases the toxicity of aluminum and Christopher Exley has suggested the use of silicon to promote excretion of aluminum from the body in conditions like multiple sclerosis. One of the major functions of silicon, the second most abundant substance in the earth's crust, may be to protect us from aluminum, the third most abundant substance in the earth's crust.

More than 95% of the aluminum ingested by people in the United States comes from food. Average oral intake of aluminum is 2-25 mg/ day, but high consumption of processed foods can result in the consumption of more than 100 mg/ day.

In 2006 the World Health Organization suggested a tolerable intake of aluminum of no more than 1mg for every 2.2 pounds of body weight per week. Thus a 220 pound man should not consume more than 100 mg per week. This is in an urban environment where daily consumption can easily surpass 700 mg per week.

Young children under five years of age are the most vulnerable to aluminum toxicity as the blood/brain barrier is not fully developed. Young children can get very high exposures from foods and immunizations. While aluminum from foods is poorly absorbed, aluminum from immunizations faces no absorption problem.

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## ALZHEIMER'S

Alzheimer's is the most common neurodegenerative disease in the world. There is little to suggest that heredity plays a major role in the problem. In 60% of studies of identical twins only one develops Alzheimer's.

Alzheimer's disease was first reported in Frankfurt by Alois Alzheimer about 20 years after an expansion in the use of aluminum. In 1926 Alzheimer's was a rare condition with only 33 cases reported. Today there are millions of cases.

Most people are not aware of their chronic exposure to highly bioavailable aluminum compounds on a daily basis. A number of studies since 1989 have associated elevated aluminum and low silica levels in water with increased incidence of Alzheimer's.

Recent research suggests that very small amounts of aluminum are necessary to induce damage to nerve cells. This level of exposure can be achieved through dietary intake alone.

The argument that aluminum can not transit the blood-brain barrier has been disproven. Aluminum can actively cross the brain barriers and gradually accumulate in brain tissues known to be damaged in Alzheimer's disease.

Experimental studies have shown that exposure to aluminum produces nerve damage with all the hallmarks of Alzheimer's disease.

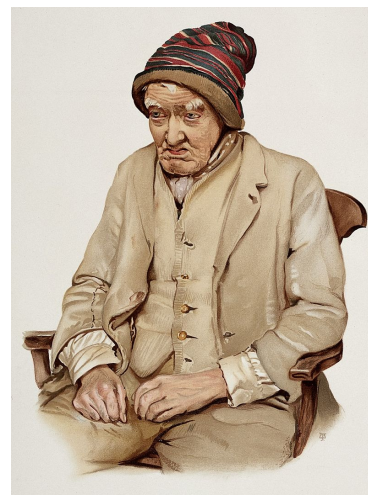
Lucija Tomljenovic writes, "Out

of all bioavailable factors considered, aluminum (Al) is the only one that has been experimentally shown to trigger all major histopathological events associated with AD (Alzheimer's Disease), at multiple levels. It is also the most controversial proposed instigator." She notes "recent studies by Walton show that chronic ingestion of Al in rats, in amounts equivalent to those humans routinely ingest, results in neuropathological outcomes characteristic of AD."

Long term exposure to aluminum has been shown to cause the accumulation of tau protein and beta-amyloid which are commonly found in the Alzheimer brain. Autopsies have found up to four times the amount of aluminum in the nerve cells of the brain of those with Alzheimer's compared to those without the disease.

Aluminum has been linked to a number of other neurological disorders including multiple sclerosis, Lou Gehrig's disease, Parkinson's, autism, and dementia. Aluminum also appears to be associated with learning disability, memory loss, impaired concentration, speech defects, confusion, anxiety, repetitive behaviors, and insomnia. Animal studies suggest that chronic exposure to aluminum can result in infertility.

Some people are much more efficient at excreting aluminum than others. These are the proverbial canaries





in the coal mine that succumb to aluminum toxicity before others with a superior ability to eliminate the toxin become damaged and poisoned by aluminum.

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## ALUMINUM IN VACCINES

In the early part of the twentieth century vaccine researchers were frustrated with the low levels of antibodies being observed when they were administering vaccines. They began adding various substances to the vaccines to make them more effective in eliciting an antibody response. In 1926 Glenn first experimented with aluminum salts as helpers or adjuvants to increase the potency of the vaccines.

Aluminum worked so effectively that it quickly became the primary vaccine adjuvant and continues to be so to this day. Unfortunately, no one questioned why aluminum created such a strong immune response nor did they think to examine the possibility that aluminum could damage tissues like the brain and nerves.

Tomljenovic points out to those who argue that vaccines have only a small amount of aluminum the following: "What they fail to stress is that unlike dietary Al of which only about 0.25% is absorbed into systemic circulation, Al from vaccines is absorbed at nearly 100% efficiency. Moreover, the sizes of most antigen-

Al complexes ..., are higher than the molecular weight cut-off of the glomerulus of the kidney..., which would preclude efficient excretion of Al adjuvants. Thus, vaccine-derived Al would have a much greater potential to induce neurological damage than that obtained through diet."

In 1997 two rabbits were injected with radioactively tagged aluminum adjuvant. Only 6% of aluminum hydroxide adjuvant had been excreted after 28 days.

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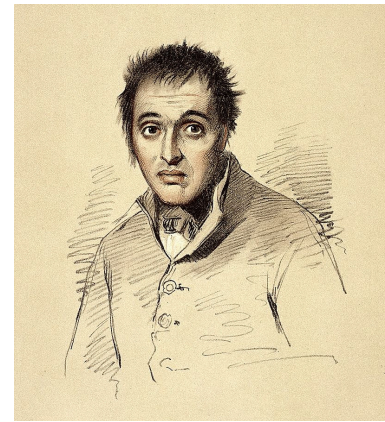
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## THE FRENCH STUDY

The French made an interesting discovery when biopsies were made at the injection sites of vaccines. The discovery was probably made in France because the British and Americans biopsy the arm that is not injected with vaccines.

The French were studying a group of 100 severely injured patients. One quarter suffered with severe chronic fatigue, 34% had multiple sclerosis, and 85% had severe muscle pains and could not work. Severe muscle and nervous system damage typically began with disabling muscle pains in legs and spread upwards. The French called this condition Macrophagic Myofasciitis (MMF).

Biopsy revealed thousands of damaged immune cells in the upper arm muscle. They immune cells had moved into the muscle cells. Analysis revealed that the immune cells had engulfed the tiny pieces of aluminum used as an adjuvant in vaccines. These immune cells were making their way to the lymphatic system. The immune



cells were dying by the time they reached the lymphatic system and spreading the aluminum throughout the body including the brain.

Gherardi stated, "The main point is that all these people were found to have a very unusual lesion at the muscle biopsy that included large infiltrates of these blue cells at the margin of the muscle tissue. These infiltrates were macrophages."

The small particles of aluminum used in adjuvants are sharp like needles and can remain in the body for over 8 years after injection. Inability to excrete aluminum efficiently is apparently associated with genetic variability in detox capability.

Doubtless many individuals had less serious damage than studied by the French. Roberts suggests that aluminum may have been a culprit in Gulf War syndrome. The anthrax vaccine given the military had very high levels of aluminum adjuvant.

Both methylmercury and aluminum interfere with the functioning of nerve cells at low levels of exposure by interfering with the functioning of the mitochondria where energy is produced.

Large quantities of aluminum are present in the flu, anthrax, hepatitis A and B, and tetanus vaccines. The toxicity of aluminum makes one wonder why it is still present in the hepatitis B vaccine which is often given to infants when they are born.

#### REFERENCES:



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### ASIA SYNDROME

Dr. Yehuda Shoenfeld, founder of the leading Centre for Autoimmune Diseases at the Sheba Medical Center, has proposed a disorder called Autoimmune/inflammatory Syndrome Induced by Adjuvants (ASIA). His work initially focused on silicone in breast enhancements, but the syndrome has more recently been discussed with regard to aluminum toxicity.

The syndrome first manifests as vague symptoms such as joint and muscle pains or pin and needle sensations on body. This can be followed by acute disease. The syndrome has been resisted by the medical community, although the condition has received a good deal of attention in animal husbandry.

An outbreak of the condition took place after the compulsory vaccina-

tion of sheep in 2008 after an outbreak of bluetongue disease.

The beginning of ASIA is described as follows: “The syndrome shows an acute phase that affects less than 0.5 % of animals in a given herd, it appears 2–6 days after an adjuvant-containing inoculation and it is characterized by an acute neurological episode with low response to external stimuli and acute meningoencephalitis (inflammation of the brain), most animals apparently recovering afterward.”

The initial stage of the disease was followed by a chronic phase, “The chronic phase is seen in a higher proportion of flocks, it can follow the acute phase, and it is triggered by external stimuli, mostly low temperatures. The chronic phase begins with an excitatory phase, followed by weakness, extreme cachexia (wasting away), tetraplegia (paralysis and loss of function of the feet) and death.”

ASIA was induced in a group of experimental animals by repeated vaccinations. Nerve damage was obvious in these animals. Susceptibility to ASIA was associated with familial susceptibility to autoimmune conditions and previous negative response

to a vaccine.

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