



Summary of Relationship Between Aluminum Exposure and Autism

- 1) All of the scientific research indicating a possible causal relationship between aluminum exposure and childhood autism is referring to the use of aluminum hydroxide as a common ingredient (called an "adjuvant") in injectable vaccines. No studies suggest that exposure to the form of aluminum routinely found in food or water increases the risk of autism in children.¹
- 2) Dietary aluminum is ubiquitous but in such small quantities that it is not a significant source of concern in persons with normal elimination capacity. In healthy subjects, only 0.3% of orally administered aluminum is absorbed by the GI tract and the kidneys effectively eliminate aluminum from the body. It is only when the GI barrier is bypassed, such as intravenous injection or in the presence of advanced renal dysfunction, that aluminum has the potential to accumulate. As an example, with intravenously injected aluminum, 40% is retained in adults and up to 75% is retained in neonates (infants).²
- 3) The total intake of aluminum from all food sources (excluding over the counter drugs) for an adult is estimated to be 8-9 mg/day for adult men and 7 mg/day for adult women in the United States. Estimates of aluminum intakes ranged from 0.7mg/day for six- 11-month-old infants to 11.5 mg/day for 14-16 year-old males. Approximately 97% of the normal daily aluminum intake for an adult is from food and the remainder is from drinking water... Drinking water contributes less than 5% of the total daily aluminum intake for most adults. In general, the proportion of aluminum absorbed by humans following oral intake is small, with most estimates ranging between 0.2% and 1.5%. The bulk of ingested aluminum is unabsorbed and excreted primarily in feces. A population fed diet high in aluminum for an extended period excreted approximately 99.9% of the intake in feces; the rest was accounted for in the urine.³
- 4) The aluminum applied to lakes is aluminum sulfate (aka "alum") not the aluminum hydroxide that is used in vaccines. Moreover, alum is rapidly converted to aluminum phosphate following lake application. Phosphates make aluminum less available for absorption. The presence of phosphates in the diet is probably the chief natural mechanism whereby aluminum is prevented from entering the circulatory system.⁴

¹ See, for example, L. Tomijevic & C. Shaw; Do aluminum vaccine adjuvants contribute to the rising prevalence of autism? *Journal of Inorganic Biochemistry*. Vol. 105, Issue #11. November, 2011; pp. 1489-1499. See, also, S. Seneff, R. Davidson and J. Liu; Empirical Data Confirm Autism Symptoms Related to Aluminum and Acetaminophen Exposure. *Entropy*. Vol. 14, Issue #11. November, 2012; pp. 2227-253.

² Dr. Jose F. Bernardo, M.D. (Asst. Prof., Dept. of Medicine, Univ. of Pittsburgh). Aluminum Toxicity. June 25, 2012. <http://emedicine.medscape.com/article/165315-overview.html>

³ Health Canada. Aluminum. Sept. 12, 2008. <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/aluminum/index-eng.pdf>

⁴ Ibid. Health Canada. Aluminum. Sept. 12, 2008.