

Major Study Finds No Link Between Aluminum in Childhood Vaccines and Chronic Conditions

What you need to know:

An independent and publicly funded study by the Danish government published in the [Annals of Internal Medicine](#) found no link between cumulative aluminum exposure from vaccines given during a child's first two years of life and any of the 50 chronic health conditions studied¹. These included: autoimmune diseases (where the immune system attacks the body); allergic or atopic diseases (like asthma and eczema); and neurodevelopmental disorders (including autism and ADHD).

Study design

Researchers analyzed a population of over 1.2 million children born in Denmark from 1997 to 2018 and generally tracked the children's health until the earlier of reaching age five or December 2020.

- The study reviewed various Danish health registries, including birth registries, vaccination records, medical records containing diagnoses and characteristics related to maternal health and socioeconomic status.
- The number and formulation of vaccines included in the early childhood series changed in measurable and predictable ways over the 24-year study period.
- Thus, researchers were able to calculate the cumulative amount of aluminum that a child received and analyze whether the rates of any of the 50 conditions had corresponding changes at different levels of exposure.
- Only about 1.2% of children received no aluminum-containing vaccines.

Why this Study is Important

- This was a **peer-reviewed study**, using complete national health care data from Denmark.
- These findings are **reliable** due to the large study population, a 24-year study period and rigorous methodology. Researchers used advanced statistical methods (large sample size, strong statistical power, detailed sensitivity analyses) to systematically identify any links between aluminum dose and disease risk, accounting for other factors.
- The results of this study **reinforce what extensive research** has already demonstrated for decades – that the small amount of aluminum salts used as adjuvants in vaccines is safe.

Understanding Aluminum in Vaccines

Adjuvants – which are substances added to a vaccine to enhance the body's immune response – have been [used safely in vaccines for decades](#) and can improve adherence to the vaccine schedule by reducing the number of doses needed (and return trips to the doctor's office)². Aluminum adjuvants are efficiently processed by the body, with no health risks identified in clinical trials or real-world use.

Aluminum is a naturally occurring element found in food and water, and the trace amounts in vaccines are far less than what people encounter through their diet or environment.



The Bottom Line:

The study found no evidence that aluminum in vaccines increases the risks of chronic diseases in children. With its large sample size and thorough data, this robust study supplements and confirms prior analyses. These results reinforce that routine childhood vaccines—whether or not they contain aluminum—safely and effectively prepare children's immune systems to recognize and resist serious infections, giving them the best opportunity to grow up healthier and better protected throughout their lives.

¹ Annals of Internal Medicine. Aluminum-Adsorbed Vaccines and Chronic Diseases in Childhood: A Nationwide Cohort Study. July 15, 2025. <https://www.acpjournals.org/doi/10.7326/ANNALS-25-00997>

² Children's Hospital of Philadelphia. Vaccine Ingredients: Aluminum. <https://www.chop.edu/vaccine-education-center/vaccine-safety/vaccine-ingredients/aluminum>