



DISCOVERY

Spring 2025 Research Newsletter

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Thompson Center for
Autism and Neurodevelopment
University of Missouri

Autism & Vaccines: Separating Fact from Fiction

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Vaccination remains one of the most effective public health interventions in modern medicine, yet persistent misinformation continues to link vaccines with autism spectrum disorder. As a multidisciplinary autism and neurodevelopmental

center dedicated to evidence-based care and research, we believe it is crucial to address these misconceptions and reaffirm the overwhelming scientific consensus: **vaccines do not cause autism.**

The Origin of the Vaccine-Autism Myth

The claim that vaccines cause autism can be traced back to a now-retracted 1998 study published in

Continued on page 3

What's Inside?

- **Autism Vaccines: Separating Fact from Fiction**
- **Statement to Patients, Families, and Community**
- **Researchers On The Go**
- **Making Sense of Autism Studies: Research Literacy Tips**
- **Recent Publications**

To our patients, families, and community:

We recognize that recent discussions and decisions surrounding autism have left many feeling unsettled and uncertain.

During times of change, our mission remains the same: to **support individuals and families** impacted by autism and other neurodevelopmental diagnoses through research, clinical service, education, and public policy.

If you have questions or concerns about your healthcare needs, we encourage you to **reach out to your healthcare provider or contact us for additional support.**

Autistic individuals strengthen and enrich our community, and we are grateful for the opportunity to serve, support, and learn from you.



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Continued from page 1

The Lancet by Andrew Wakefield. The study suggested a link between the measles-mumps-rubella (MMR) vaccine and autism; however, it was based on a small sample size, lacked proper controls, and was found to be riddled with ethical and methodological flaws.

Subsequent investigations led to the study's retraction, and Wakefield lost his medical license. Despite this, the misinformation took root, fueling vaccine hesitancy worldwide.

Scientific Evidence Disproving a Link

Over the past two decades, extensive research has been conducted to investigate any potential association between vaccines and autism. Large-scale studies, including those by the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), and independent researchers, have consistently found no link between vaccines and autism.

For example, a landmark 2019 study conducted in Denmark followed over 650,000 children and found no increased risk of autism in those who received the MMR vaccine compared to those who did not. Similar studies worldwide have reinforced these findings, further discrediting the claim that vaccines contribute to autism diagnoses.

Understanding Autism's True Origins

Autism is a neurodevelopmental condition with complex genetic and environmental influences. Advances in genetic research have identified hundreds of genes associated with autism, and studies indicate that autism begins in early brain development, often before birth. Environmental factors, such as prenatal exposures and complications during pregnancy, may contribute to autism risk,

but vaccines are not among them.

The Dangers of Vaccine Misinformation

Misinformation about vaccines has real-world consequences. Decreased vaccination rates have led to outbreaks of preventable diseases, such as measles, which had been nearly eradicated in many countries. When vaccine uptake declines, vulnerable populations—including children with neurodevelopmental conditions—face increased risks of severe illness.

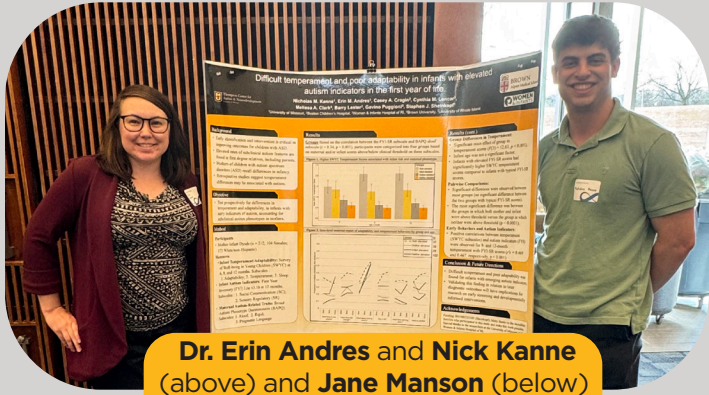
Our Commitment to Evidence-Based Care

As clinicians, researchers, and advocates for individuals with autism, our Center remains committed to disseminating accurate information. We encourage families to rely on reputable sources, such as the WHO and the American Academy of Pediatrics, when making health decisions.

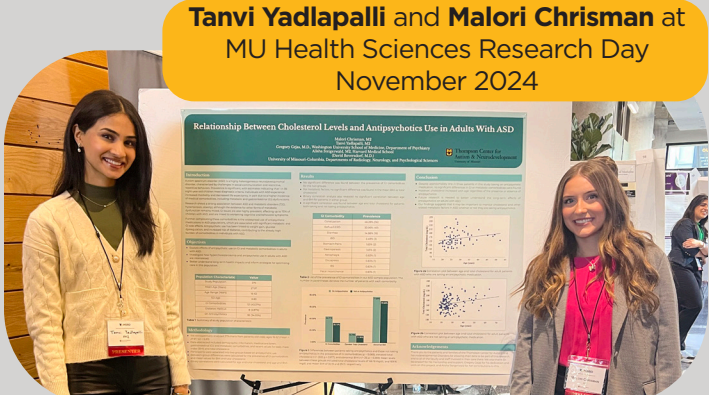
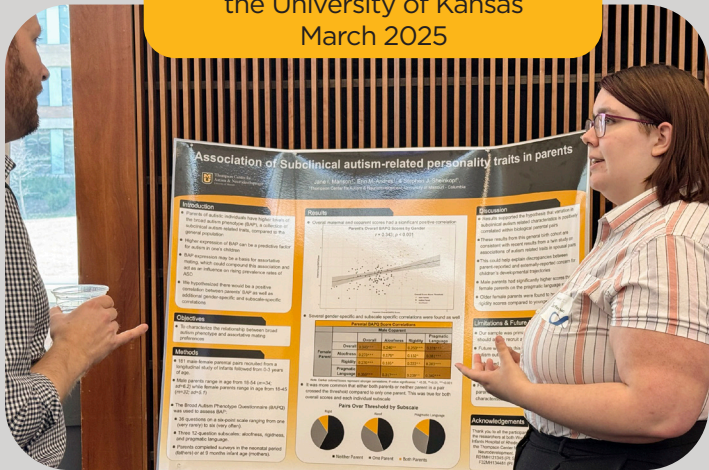
Autism is a lifelong condition that requires compassion, understanding, and scientific inquiry. Ensuring that families receive accurate information about its causes—including dispelling harmful myths about vaccines—is essential to promoting both public health and the well-being of the autism community.

For more information, we invite you to explore our Center's research initiatives and educational resources on autism and neurodevelopment. We remain committed to allocating our resources, expertise, and time for the betterment of our patients and their families and will continue to follow the science in researching the causes and best interventions for children with autism.

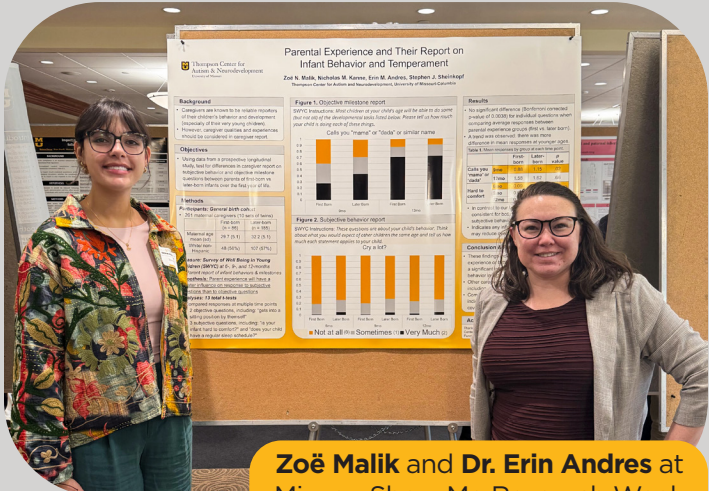
Researchers On The Go



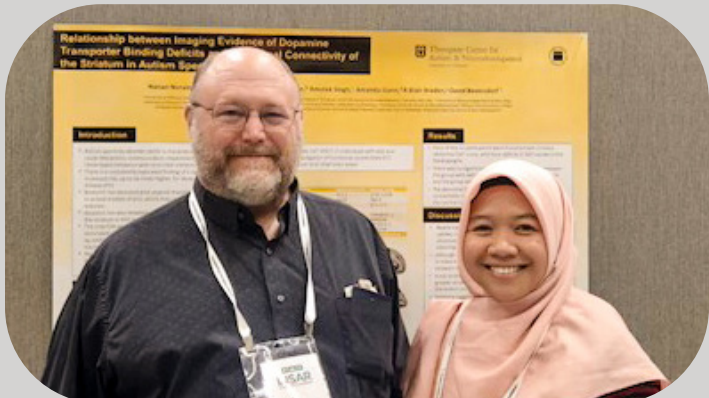
Dr. Erin Andres and Nick Kanne (above) and Jane Manson (below) at Autism Across the Life Span at the University of Kansas March 2025



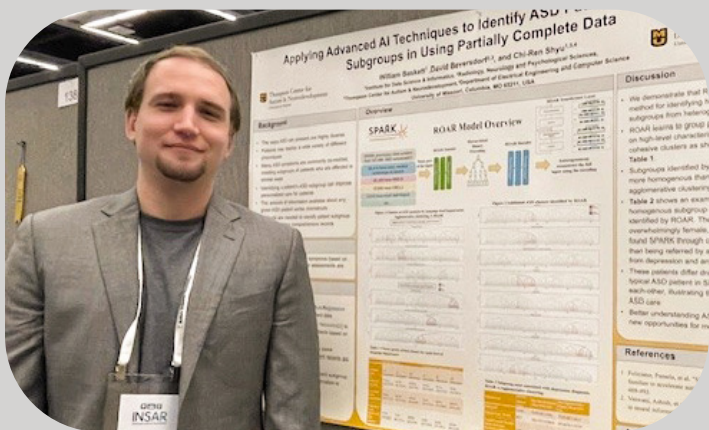
Tanvi Yadlapalli and Malori Chrisman at MU Health Sciences Research Day November 2024



Zoë Malik and Dr. Erin Andres at Mizzou Show Me Research Week April 2025



Dr. David Beversdorf and Nanaan Nuraini (top left), William Baskett (bottom left), and Dr. Stephen Sheinkopf with Italia Camillone from Women and Infants Hospital of Rhode Island (below) at the International Society for Autism Research (INSAR) Meeting in Seattle May 2025



Thompson Center for Autism & Neurodevelopment

Making Sense of Autism Studies: Research Literacy Tips

In a world overflowing with headlines, health trends, and social media advice, it’s easy to feel overwhelmed by scientific claims, especially those related to autism. You might see a flashy news story touting a “breakthrough” therapy, or come across a study on Facebook that sounds too good—or too alarming—to be true.

Being research literate means knowing how to ask the right questions about science, and it’s more important than ever. As Nicole Takahashi, Research Core Director at the Thompson Center for Autism & Neurodevelopment, explains, “science literacy is no different than other types of media literacy.” Whether you’re reading a news article or a peer-reviewed journal, the key is to remain thoughtful, skeptical, and curious.

Before accepting a research claim at face value, consider the following points from the Thompson Center Research Core team.

Sample Size: Why A Few Isn’t Enough
If a study involves only a small number of participants, its findings may not be reliable. “You can’t make a lot of inferences from just a group of five, or even 100 in some cases,” Takahashi says. In general, larger sample sizes allow for more confidence that the findings apply to a broader population.

Amanda Moffitt Gunn, Research Specialist II at the Thompson Center, adds that a large, diverse sample helps researchers determine whether a result is generalizable. In other words, it helps determine whether it can be used to make predictions about people beyond those included in the study.

Small studies are also more prone to sample bias. As Moffitt Gunn notes, researchers may (consciously or not) select participants likely to produce expected outcomes, which

can make results seem stronger than they actually are. For instance, if an autism study only includes participants with strong verbal skills, its conclusions may not truly apply to nonspeaking autistic individuals.

Methodology & Replication Matter
Reliable research should be transparent about its methodology. This includes how participants were selected, what tools were used, and how results were measured. If that information is missing or vague, it becomes difficult to assess the study’s credibility. “If a lot of important details are missing,” says Takahashi, “it makes me wonder, ‘Why aren’t they giving me all of the information?’”

While one well-conducted study can be informative, real confidence comes when independent researchers replicate the results using different methods. “You can be more confident in the findings if multiple, independent groups that were using slightly different techniques all drew the same conclusion,” Moffitt Gunn explains.

Watch for Correlation Confusion
Strong research clearly distinguishes between correlation and causation. Correlation means that two factors appear related. Causation means that one factor directly affects the other. A classic example? Ice cream sales and crime both increase in summer, but that doesn’t mean selling ice cream causes crime.

“Just because two things are related doesn’t mean that one causes the other. And even if it does, a correlation doesn’t show the direction of the causation,” says Moffitt Gunn.

This issue shows up frequently in autism

Continued on page 6

research. For instance, autism symptoms often become noticeable around the same time children receive vaccinations. But that is also when many parents complete developmental screenings like the M-CHAT. “Parents may be alerted to symptoms that were already there because they were at a routine doctor’s appointment, where they also happened to receive a vaccination,” Moffitt Gunn explains.

Another example: children with autism are statistically more likely to have older fathers. That’s a correlation, not proof that paternal age causes autism.

What Do the Experts Think?

For those without scientific training, it can be difficult to determine whether a study’s methods and conclusions are valid. That’s where peer review becomes essential. Peer review is the process by which other experts evaluate a study before it is published, providing a critical quality check. If a claim does not reference a peer-reviewed journal, that’s a red flag.

Consider the Motives & Marketing

Sometimes, research is driven more by commercial interests than by scientific inquiry. Bailey Long, a Research Specialist I, notes that not all studies are neutral—especially when companies fund research supporting the products they sell.

Research Specialist I Jane Manson advises caution when a product is marketed with dramatic or exaggerated claims. “If there’s a claim that a product is a miracle, is going to fix all of your problems, and that’s why you should buy it, that should give you pause in any context,” they said.

Takahashi reminds us that catchy headlines rarely capture the full nuance of research. “I’m guilty just as much as anyone else is of

seeing an enticing headline and saying, ‘I’ve only seen the headline, I haven’t had time to research it, but did you see this new thing?’ But I try to always have that caveat that it might not be what it seems.”

Don’t Confuse Popularity With Scientific Proof

Not every popular trend is backed by solid evidence. Weighted blankets, essential oils, or gluten-free diets might help some people, but they are not all supported by strong research. That doesn’t mean they must be dismissed entirely, but it is important to manage expectations and consult healthcare professionals. As Moffitt Gunn points out, sometimes improvements result from unrelated changes. For instance, a child may appear to benefit from a casein-free diet not because the diet affects autism symptoms, but because the child was lactose intolerant and simply feels better. “If something works for one family, that’s great for them. But it doesn’t necessarily mean that we can use that as a basis to make recommendations to a large swath of people,” she says.

Stay Skeptical (Even of Things You Agree With)

“It’s good to keep a mindset of being skeptical,” says Dakota Fields, Research Specialist II. “Try to be mindful, even for sources you do trust—try not to take anything at face value. You don’t want to be susceptible to misinformation just because it aligns with something you already believe in.” Being research literate means asking tough questions and being willing to challenge your own assumptions.

The Bottom Line

You don’t need to be a scientist to think like one. With curiosity, caution, and a willingness to ask questions, anyone can become more confident in evaluating research claims. That confidence can help you make informed decisions.

Recent Publications

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Want to see more from Thompson Center researchers?

Scan the code or visit <https://thompsoncenter.missouri.edu/publications/> for a full list of studies by Thompson Center authors and links to each publication.

Join A Study

Clinical Trial for Social Communication

Participate in a clinical trial exploring the potential effects on social communication and other behaviors.

- Eligibility: Age 12-17 with a diagnosis of ASD AND participation of a parent/guardian
- Time required: Up to 10 visits and 1 phone call over approximately 25 weeks
- Location: Thompson Center
- Monetary compensation: \$100 each for participants and their care/study partner per completed visit
- To check eligibility, please visit <https://redcap.link/iris>

SPARK

SPARK is a free online study with a simple mission: to speed up research and advance the understanding of autism. By building a community of tens of thousands of individuals with autism and their biological family members who provide behavioral and genetic data, SPARK will be the largest autism research study to date.

- Eligibility: Diagnosis of ASD
- Time required: Complete a few questionnaires, provide a saliva DNA sample using collection kits sent directly to your home
- Location: Online surveys
- Monetary compensation: Gift card up to \$50

Biomarker Study

The goals of this study are to: 1. Gather additional information on subpopulations of autism spectrum disorder as identified by the Sponsor and 2. Learn more about autism spectrum disorder by identifying subgroups of patients with autism based on biomarkers. Biomarkers are also known as “biological signs” that can be linked to a condition and how it progresses.

- Eligibility: Age 12-45 with a diagnosis of autism spectrum disorder AND participation of a care/study partner, such as a parent or spouse
- Time required: One visit lasting approximately 3 hours
- Location: Thompson Center
- Monetary compensation: \$100 per completed visit, meal voucher, and travel compensation

Interested in these studies or others?

Call the Research Core at 573-303-8405, email tcresearch@missouri.edu, or scan the QR code to learn more.



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