

# MMR vaccine does not cause autism

## Examine the evidence!

In February 1998, *The Lancet* published an article titled "Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children," which suggested that MMR vaccine could contribute to the development of autism. Intense media coverage of the article followed its publication, and many parents, particularly in the UK, refused MMR vaccination of their children.

In 2004, *The Lancet* published a retraction submitted by 10 of the 13 original authors. The authors stated that there was no connection between the MMR vaccine and the bowel disease/autism syndrome.

A decade later, the number of articles published in peer-reviewed medical journals that refute a connection between MMR vaccine and autism totals more than 20; whereas the number of articles that suggest a connection between the vaccine and autism stands at 3.

The following list of studies published in peer-reviewed journals is provided so that parents and practitioners can themselves compare the balance of evidence about MMR and autism.

### 23 studies that refute a connection between MMR vaccine and the development of autism

1. *MMR-Vaccine and Regression in Autism Spectrum Disorders: Negative Results Presented from Japan.* Uchiyama T et al. *J Autism Dev Disord* 2007; 37(2):210-7 \*Subjects: 904 children with autism spectrum disorder (Note: MMR was used in Japan only between 1989 and 1993.)
2. *No Evidence of Persisting Measles Virus in Peripheral Blood Mononuclear Cells from Children with Autism Spectrum Disorder.* D'Souza Y et al. *Pediatrics* 2006; 118(4):1664-75 \*Subjects: 54 children with autism spectrum disorder and 34 developmentally normal children
3. *Immunizations and Autism: A Review of the Literature.* Doja A, Roberts W. *Can J Neurol Sci.* 2006; 33(4):341-6 \*Literature review
4. *Pervasive Developmental Disorders in Montreal, Quebec, Canada: Prevalence and Links with Immunizations.* Fombonne E et al. *Pediatrics.* 2006;118(1):139-50 \*Subjects: 27,749 children born from 1987 to 1998 attending 55 schools
5. *Relationship between MMR Vaccine and Autism.* Klein KC, Diehl EB. *Ann Pharmacother.* 2004; 38(7-8):1297-300 \*Literature review of 10 studies
6. *Immunization Safety Review: Vaccines and Autism.* Institute of Medicine. The National Academies Press: 2004 ([www.nap.edu/books/030909237X/html](http://www.nap.edu/books/030909237X/html)) \*Literature review
7. *MMR Vaccination and Pervasive Developmental Disorders: A Case-Control Study.* Smeeth L et al. *Lancet* 2004; Vol. 364(9438):963-9 \*Subjects: 1294 cases and 4469 controls
8. *Age at First Measles-Mumps-Rubella Vaccination in Children with Autism and School-Matched Control Subjects: A Population-Based Study in Metropolitan Atlanta.* DeStefano F et al. *Pediatrics* 2004; Vol. 113(2): 259-66 \*Subjects: 624 children with autism and 1,824 controls
9. *Prevalence of Autism and Parentally Reported Triggers in a North East London Population.* Lingam R et al. *Arch Dis Child* 2003; 88(8):666-70 \*Subjects: 567 children with autistic spectrum disorder

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### 3 studies that suggested a connection between MMR vaccine and the development of autism

1. *Potential Viral Pathogenic Mechanism for a New Variant Inflammatory Bowel Disease.* Uhlmann V et al. *Mol Pathol* 2002; 55(2):84-90 \*Subjects: 91 patients with a confirmed diagnosis of ileal lymphonodular hyperplasia and enterocolitis and 70 controls  
★ Read about limitations of this study: [www.cdc.gov/od/science/isolconcerns/mmr\\_autism\\_faqs.htm](http://www.cdc.gov/od/science/isolconcerns/mmr_autism_faqs.htm)
2. *Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children.* Wakefield AJ et al. *Lancet* 1998; 351(9103):637-41 \*Subjects: 12 children with chronic enterocolitis and regressive developmental disorder  
★ Read about limitations of this study: [www.immunize.org/catg.d/p2065.pdf](http://www.immunize.org/catg.d/p2065.pdf)  
★ "A Statement by the Editors of the Lancet," 2/23/04, regarding this paper and an undisclosed potential conflict of interest: <http://image.thelancet.com/extras/statement20Feb2004web.pdf>  
★ "Retraction of an Interpretation," *The Lancet*, March 6, 2004. Go to [www.thelancet.com](http://www.thelancet.com) and register (no charge) to access this article.
3. *Evidence of Persistent Measles Virus Infection in Crohn's Disease.* Wakefield AJ et al. *J Med Virol* 1993; 39(4):345-53 \*Subjects: Electron microscopy specimens from Crohn's disease and control patients  
★ The validity of this finding has been called into question when it could not be reproduced by other researchers (Nielsen et al., Jones et al., Feeney et al., Hermon-Taylor, Liu et al., Haga, Iizuka, Afzal).

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10. *Neurologic Disorders after Measles-Mumps-Rubella Vaccination*. Make-la A et al. *Pediatrics* 2002; 110:957-63 \*Subjects: 535,544 children vaccinated between November 1982 and June 1986 in Finland
11. *A Population-Based Study of Measles, Mumps, and Rubella Vaccination and Autism*. Madsen KM et al. *N Engl J Med* 2002; 347(19):1477-82 \*Subjects: All 537,303 children born 1/91–12/98 in Denmark
12. *Relation of Childhood Gastrointestinal Disorders to Autism: Nested Case Control Study Using Data from the UK General Practice Research Database*. Black C et al. *BMJ* 2002; 325:419-21 \*Subjects: 96 children diagnosed with autism and 449 controls
13. *Measles, Mumps, and Rubella Vaccination and Bowel Problems or Developmental Regression in Children with Autism: Population Study*. Taylor B et al. *BMJ* 2002; 324(7334):393-6 \*Subjects: 278 children with core autism and 195 with atypical autism
14. *No Evidence for a New Variant of Measles-Mumps-Rubella-Induced Autism*. Fombonne E et al. *Pediatrics* 2001;108(4):E58 \*Subjects: 262 autistic children (pre- and post-MMR samples)
15. *Measles-Mumps-Rubella and Other Measles-Containing Vaccines Do Not Increase the Risk for Inflammatory Bowel Disease: A Case-Control Study from the Vaccine Safety Datalink Project*. Davis RL et al. *Arch Pediatr Adolesc Med* 2001;155(3):354-9 \*Subjects: 155 persons with IBD with up to 5 controls each
16. *Time Trends in Autism and in MMR Immunization Coverage in California*. Dales L et al. *JAMA* 2001; 285(9):1183-5 \*Subjects: Children born in 1980-94 who were enrolled in California kindergartens (survey samples of 600–1,900 children each year)
17. *Mumps, Measles, and Rubella Vaccine and the Incidence of Autism Recorded by General Practitioners: A Time Trend Analysis*. Kaye JA et al. *BMJ* 2001; 322:460-63 \*Subjects: 305 children with autism
18. *Further Evidence of the Absence of Measles Virus Genome Sequence in Full Thickness Intestinal Specimens from Patients with Crohn's Disease*. Afzal MA, et al. *J Med Virol* 2000; 62(3):377-82 \*Subjects: Specimens from patients with Crohn's disease
19. *Autism and Measles, Mumps, and Rubella Vaccine: No Epidemiological Evidence for a Causal Association*. Taylor B et al. *Lancet* 1999;353(9169):2026-9 \*Subjects: 498 children with autism
20. *Absence of Detectable Measles Virus Genome Sequence in Inflammatory Bowel Disease Tissues and Peripheral Blood Lymphocytes*. Afzal MA et al. *J Med Virol* 1998; 55(3):243-9 \*Subjects: 93 colonoscopic biopsies and 31 peripheral blood lymphocyte preparations
21. *No Evidence for Measles, Mumps, and Rubella Vaccine-Associated Inflammatory Bowel Disease or Autism in a 14-year Prospective Study*. Peltola H et al. *Lancet* 1998; 351:1327-8 \*Subjects: 3,000,000 doses of MMR vaccine
22. *Exposure to Measles in Utero and Crohn's Disease: Danish Register Study*. Nielsen LL et al. *BMJ* 1998; 316(7126):196-7 \*Subjects: 472 women with measles
23. *Immunocytochemical Evidence of Listeria, Escherichia coli, and Streptococcus Antigens in Crohn's Disease*. Liu Y et al. *Gastroenterology* 1995; 108(5):1396-1404 \*Subjects: Intestines and mesenteric lymph node specimens from 21 persons from families with a high frequency of Crohn's disease