

# 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.

In 2008, 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.

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

25. *Lack of Association between Measles Virus Vaccine and Autism with Enteropathy: A Case-Control Study.* Hornig M et al. PLoS ONE 2008; 3(9): e3140 doi:10.1371/journal.pone.0003140 \*Subjects: 25 children with autism and GI disturbances and 13 children with GI disturbances alone (controls)
24. *Measles Vaccination and Antibody Response in Autism Spectrum Disorders.* Baird G et al. Arch Dis Child 2008; 93(10):832-7. Subjects: 98 vaccinated children aged 10-12 years in the UK with autism spectrum disorder (ASD); two control groups of similar age: 52 children with special educational needs but no ASD and 90 children in the typically developing group
23. *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.)
22. *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
21. *Immunizations and Autism: A Review of the Literature.* Doja A, Roberts W. Can J Neurol Sci. 2006; 33(4):341-6 \*Literature review
20. *Pervasive Developmental Disorders in Montreal, Quebec, Canada: Prevalence and Links with Immunizations.* Fombonne E et al. Pediatrics. 2006;118(1):e139-50 \*Subjects: 27,749 children born from 1987 to 1998 attending 55 schools
19. *Relationship between MMR Vaccine and Autism.* Klein KC, Diehl EB. Ann Pharmacother. 2004; 38(7-8):1297-300 \*Literature review of 10 studies
18. *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
17. *MMR Vaccination and Pervasive Developmental Disorders: A Case-Control Study.* Smeeth L et al. Lancet 2004; 364(9438):963-9 \*Subjects: 1294 cases and 4469 controls

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

3. *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/vaccinesafety/concerns/mmr\\_autism\\_factsheet.htm](http://www.cdc.gov/vaccinesafety/concerns/mmr_autism_factsheet.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,” Lancet 2004; 363(9411):820-1, regarding this paper and an undisclosed potential conflict of interest: [www.thelancet.com/journals/lancet/article/PIIS0140-6736\(04\)15699-7/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(04)15699-7/fulltext)  
★ “Retraction of an Interpretation,” Lancet 2004; 363(9411):750  
Go to [www.thelancet.com](http://www.thelancet.com) and register (no charge) to access this article.
1. *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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16. *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; 113(2): 259-66 \*Subjects: 624 children with autism and 1,824 controls
15. *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
14. *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
13. *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
11. *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
10. *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)
9. *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
8. *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)
7. *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
6. *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
5. *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
4. *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
3. *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
2. *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
1. *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