

Does MMR vaccine cause autism?

Examine the evidence!

A paper by Dr. Andrew Wakefield et al. was published in *The Lancet* in 1998 suggesting that MMR vaccine could contribute to the development of autism. This paper caused many parents to refuse MMR for their children. Subsequent studies have shown no relationship between MMR vaccination and development of autism.

The following list of studies published in peer-reviewed journals is provided so that parents and practitioners can weigh the evidence about MMR and autism themselves. To access an up-to-date web page on this topic, which includes links to all abstracts, go to: www.immunize.org/mmrautism

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

1. *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
2. *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
3. *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
4. *Neurologic Disorders after Measles-Mumps-Rubella Vaccination.* Makela A et al. *Pediatrics* 2002; 110:957-63 ♦ Subjects: 535,544 children vaccinated between November 1982 and June 1986 in Finland
5. *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
6. *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
7. *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
8. *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
10. *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).
11. *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
12. *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

13. *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
14. *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
15. *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
16. *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
17. *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

3 studies that suggest 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/nip/vacsafe/concerns/autism/letter-02-15-02.pdf
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
★ "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 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).