

Mayo Clinic study: multiple surgeries and anesthesia exposure

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Every year millions of babies and toddlers receive general anesthesia for procedures ranging from hernia repair to ear surgery. Now, researchers at Mayo Clinic in Rochester have found a link among children undergoing multiple surgeries requiring general anesthesia before age 2 and learning disabilities later in childhood.

The study, which will be published in the November 2011 issue of [Pediatrics](#) (published online Oct. 3), was conducted with existing data of 5,357 children from the Rochester [Epidemiology](#) Project and examined the medical and educational records of 1,050 children born between 1976 and 1982 in a single school district in Rochester.

"After removing factors related to existing [health issues](#), we found that children exposed more than once to anesthesia and surgery prior to age 2 were approximately three times as likely to develop problems related to speech and language when compared to children who never underwent surgeries at that young age," says David Warner, M.D., Mayo Clinic anesthesiologist and co-author of the study.

Among the 5,357 children in the cohort, 350 underwent surgeries with [general anesthesia](#) before their second birthday and were matched with 700 children who did not undergo a procedure with anesthesia. Of those exposed to anesthesia, 286 experienced only one surgery and 64 had more than one. Among those children who had multiple surgeries before age 2, 36.6 percent developed a [learning disability](#) later in life. Of those with just one surgery, 23.6 percent developed a learning disability, which

compares to 21.2 percent of the children who developed learning disabilities but never had surgery or anesthesia before age 2. However, researchers saw no increase in behavior disorders among children with multiple surgeries.

"Our advice to parents considering surgery for a child under age 2 is to speak with your child's physician," says Randall Flick, M.D., Mayo Clinic pediatric anesthesiologist and lead author of the study. "In general, this study should not alter decision-making related to surgery in young children. We do not yet have sufficient information to prompt a change in practice and want to avoid problems that may occur as a result of delaying needed procedures. For example, delaying ear [surgery](#) for children with repeated ear infections might cause hearing problems that could create learning difficulties later in school."

This study, funded by the U.S. Food and Drug Administration, examines the same population data used in a 2009 study by Mayo Clinic researchers, which reviewed records for children under age 4 and was published in the medical journal *Anesthesiology*.

The 2009 Mayo Clinic study was the first complete study in humans to suggest that exposure of children to anesthesia might affect development of the brain. Several previous studies suggested that anesthetic drugs might cause abnormalities in the brains of young animals. The study released today is significant because it examines children experiencing anesthesia and surgeries under age 2 and removes factors associated with existing health issues.

Provided by Mayo Clinic

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