



# FRIENDS OF NICHD COALITION NEWS

The Eunice Kennedy Shriver National Institute of Child Health and Human Development  
National Institutes of Health

## Summer 2008

The *Friends of NICHD News* is a quarterly report from the Friends of NICHD highlighting some of the research advances and programs funded by the NICHD, one of the institutes at the National Institutes of Health. The Friends of NICHD is an independent coalition of more than 100 organizations representing scientists, physicians, health care providers, patients and parents concerned with the health and welfare of women, children, families and people with disabilities. The NICHD sponsors research on human development, before and after birth; maternal, child, and family health; reproductive biology and population issues; and medical rehabilitation. For more information, visit the Institute's Web site at <http://www.nichd.nih.gov>.

### **Childhood Obesity Linked to Decrease in Activity**

In July, NICHD-sponsored scientist Philip Nader, M.D., Emeritus Professor of Pediatrics at the University of California San Diego and his coauthors reported in the *Journal of the American Medical Association* their findings of a marked decrease in physical activity in children between the ages of 9 to 15. By analyzing data collected for the NICHD Study of Early Child Care and Youth Development, a long term study of more than 1,000 children from ethnically and economically diverse backgrounds, the researchers found that at age 9, children were active approximately three hours on weekdays and weekends. However, by age 15, they averaged only 49 minutes per weekday and 35 minutes per weekend. "Lack of physical activity in childhood raises the risk for obesity and its attendant health problems later in life," said Duane Alexander, M.D., Director of NIH's *Eunice Kennedy Shriver National Institute of Child Health and Human Development* (NICHD).

Dr. Nader explained that local school systems have a role to play by ensuring children receive periodic recess breaks and daily active physical education. He added that local governments also could strive to provide safe biking and walking routes around schools. According to the study authors, "Consequently, there is need for program and policy action as early as possible at the family, community, school, health care, and governmental levels to address the problem of decreasing physical activity with increasing age."

[http://www.nichd.nih.gov/news/releases/july152008\\_physical\\_activity.cfm](http://www.nichd.nih.gov/news/releases/july152008_physical_activity.cfm)

### **New Discoveries for Rett Syndrome Gene**

Rett syndrome, a genetic, neurological and developmental disorder that causes autistic behavior and other disabling symptoms, occurs predominantly in girls because the gene that is linked to the disorder (the MECP2 gene) is located on the X chromosome. Girls with Rett syndrome, who have a deficiency of the MECP2 gene, tend to develop normally until about one year of age, and then regress in their language, cognitive and motor skills. They lose the words they have learned, as well as their skilled hand movements, which become replaced by repetitive wringing and clapping. Other common features include seizures, stunted growth and small brain size, mood disturbances and sleep problems. Having extra copies of MECP2 can also cause Rett-like symptoms.

Until now, scientists thought that the gene behind Rett syndrome was an "off" switch, or repressor, for other genes. But the new study, published today in *Science*, shows that it is an "on" switch for a startlingly large number of genes. MECP2's dual roles in gene repression and activation were "a total

surprise," says the lead author of the new study, Huda Zoghbi, M.D., a professor at Baylor College of Medicine in Houston and an investigator of the Howard Hughes Medical Institute. Dr. Zoghbi led the team that first linked MECP2 deficiencies to Rett syndrome in 1999, also an NIH-funded effort. Many lines of evidence pointed to the MECP2 protein as a gene repressor, and that is how experts in the field, including Dr. Zoghbi, have defined its function for the past 10 years. [http://www.nichd.nih.gov/health/topics/Rett\\_Syndrome.cfm](http://www.nichd.nih.gov/health/topics/Rett_Syndrome.cfm)

### **Examining the Role of Breastfeeding in Preventing Infant Death and HIV Infection in Resource-Poor Countries**

In July, *The New England Journal of Medicine's* print edition published two NICHD-supported studies examining the challenges faced by HIV-positive mothers in many poor countries. Many of these mothers with HIV face a stark choice: to nurse their infants and risk passing on HIV through their breast milk—or to formula feed and deprive their infants of much of the natural immunity needed to protect against fatal diseases of early infancy.

One study was supported in large part by NIH, with additional funding by the Centers for Disease Control and Prevention and the United States Agency for International Development. That study found no benefit for infants born to mothers with HIV from abrupt cessation of breastfeeding after the first four months of life. In addition, this study found no difference in HIV infection rates or in death rates by age 2 among infants abruptly weaned off all breast milk at four months versus those who breastfed until later in infancy. In fact, for one group of infants, those infected with HIV, abrupt cessation of breastfeeding resulted in an increased death rate.

The other study, co-sponsored by the NIH and the Centers for Disease Control and Prevention, found that it was possible to greatly reduce the risk of HIV infection in breast-feeding infants by treating them with an extended anti-HIV regimen. The treatment consisted of the anti-HIV drug nevirapine, alone or in combination with the drug zidovudine, during the first 14 weeks of life.

“In poor countries where sanitation is a problem, exclusive breastfeeding appears to confer the greatest benefits to infant health and survival, even in mothers with HIV,” said Duane Alexander, M.D., director of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), the NIH institute that provided much of the support for the two studies. “Extended treatment with nevirapine greatly reduces the chances that infants will be infected with HIV through breast milk. The National Institutes of Health is now sponsoring additional studies to determine the most effective treatments to prevent the spread of HIV through breast milk.”

[http://www.nichd.nih.gov/news/releases/june042008\\_Preventing\\_Infant\\_Death.cfm](http://www.nichd.nih.gov/news/releases/june042008_Preventing_Infant_Death.cfm)

### **Surgeon General's Conference Outlines Agenda to Prevent Preterm Birth**

Experts convened by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development for the Office of the Surgeon General developed an agenda for activities in the public and private sectors to reduce the nation's rate of preterm birth. The agenda calls for a national system to better understand the occurrence of preterm birth and a national education program to help women reduce their chances of giving birth prematurely. It also calls for improved methods for estimating the age of the fetus, and studies to identify biomarkers that would signal the beginning of preterm labor.

“The agenda developed at this conference will provide the first step for reducing the considerable emotional and financial toll that preterm birth exacts in lost lives, disability, and increased health care costs,” said Acting Surgeon General Steven K. Galson, M.D., M.P.H, a rear admiral in the U.S. Public Health Service.

[http://www.nichd.nih.gov/about/meetings/2008/SG\\_pretermbirth.cfm](http://www.nichd.nih.gov/about/meetings/2008/SG_pretermbirth.cfm)

### **Magnesium Sulfate Treatment Reduced Risk of Cerebral Palsy**

Preterm infants born to mothers receiving intravenous magnesium sulfate—a common treatment to delay labor—are less likely to develop cerebral palsy than are preterm infants whose mothers do not receive it, report researchers in a large National Institutes of Health research network. Cerebral palsy refers to a group of neurological disorders affecting control of movement and posture and that limit activity. The brain may be injured or develop abnormally during pregnancy, birth or in early childhood. The causes of cerebral palsy are not well understood.

“A third of all cases of cerebral palsy are associated with preterm birth,” said NIH Director Elias A. Zerhouni, M.D. “This study shows a significant reduction in cerebral palsy among preterm infants whose mothers were given magnesium sulfate.”

The researchers theorized that magnesium sulfate protects against cerebral palsy because it can stabilize blood vessels, protects against damage from oxygen depletion and protects against injury from swelling and inflammation.

The research was conducted by investigators in 20 participating research centers of the Maternal Fetal Medicine Units Network of NIH’s *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD). The study’s first author was Dwight J. Rouse, M.D., of the University of Alabama at Birmingham. Major funding was provided by NIH’s National Institute of Neurological Disorders and Stroke (NINDS). The study results appear in the August 28, 2008 *New England Journal of Medicine*.

[http://www.nichd.nih.gov/news/releases/aug272008\\_magnesium\\_sulfate.cfm](http://www.nichd.nih.gov/news/releases/aug272008_magnesium_sulfate.cfm)

***Celebrating 45 years of research on all stages of human development to better understand and improve the health of children, adults, families and communities.***

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