

Rochester autism researchers present new findings at IMFAR

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Much about autism is unknown, but researchers from the University of Rochester Medical Center (URMC) are working to learn more about the neurodevelopmental disorder and its most effective treatments. A team of researchers from URMC joins researchers from across the world in San Diego this week for the 10th annual International Meeting for Autism Research (IMFAR).

Rochester researchers are presenting six abstracts on topics ranging from complementary medicine-use rates to nutritional insufficiencies in children with [autism](#) spectrum disorders. They even looked at how artificial food dye might affect children with autism.

"It's incredibly important that we find the most effective interventions for children with autism spectrum disorders," said Susan Hyman, M.D., chief of Neurodevelopmental and Behavioral Pediatrics at URMC's Golisano Children's Hospital and an active autism researcher and clinician. "We also need to examine whether traditional and non-traditional treatments may be helping or causing harm, and what roles environmental factors may be playing in autism."

Hyman said that participation in the Autism Treatment Network (ATN) funded by Autism Speaks and the Health Resources and Services Administration (HRSA) and partnering with the Clinical and Translational Science Institute (CTSI) has allowed the growth of clinical research related to autism at URMC. The abstracts presented this week reflect Rochester data and analyses of the ATN database of more than

3,000 children and youth across 15 ATN sites in the U.S. and Canada.

Autism and nutrition

Patricia Stewart, Ph.D., R.D., director of Bionutrition for the CTSI at URMC, examined the nutritional intake of children with autism, including supplement use. It is important to understand how the significant food related behaviors and aversions that children with autism impact their current and future health. Her abstract shows that two-thirds of children with autism are taking supplements, twice the rate in the general pediatric population (32 percent). She reports that the nutrients most likely to be deficient in the children, were not included in adequate amounts in the supplements used. For example, most of those supplements contain vitamin D (97 percent), few contain choline (37 percent), vitamin K (11 percent) and potassium (8 percent). None contained any fiber, which is important for bowel health and is eaten in limited amounts by picky eaters.

In addition, there were several nutrients in supplements – folate, niacin and vitamin A – that exceeded recommended levels, even before adding in the nutrients from food. Excessive amounts of these nutrients don't usually cause a problem, but there are known side effects that families and their health care providers need to be aware of. Too much folate can mask a neurological complication of vitamin B12 deficiency and some evidence shows that high levels can provoke seizures in patients on anti-convulsant medications. Too much niacin can cause flushing, gastrointestinal distress and liver damage. And too much vitamin A can have teratological effects (birth defects and other abnormalities of development), liver toxicity, reduced bone mineral density resulting in osteoporosis and central nervous system disorders.

"It's important for dieticians and health care providers to know the potential nutritional insufficiencies and excesses children with autism

may be experiencing," Stewart said. "Diet and supplement use can impact their health and some nutritional problems may also affect their behavior. There is a great need for additional research in this area."

Food dyes and sleep

Many families – who have children with autism or Attention Deficit Hyperactivity Disorder (ADHD) or who have typically developing kids – eliminate food dyes from their diet, hoping to avoid behavior issues. Some studies suggest artificial food dyes may increase hyperactivity in children, but the effect on children with autism has not been examined. Hyman, Stewart and their collaborators, in the course of conducting a study of the diet and nutrition of children with [autism spectrum disorders](#), performed a pilot study on the effect of food dye consumption on a small group of children with autism. Food dye intake was determined from a three-day food record and examined relative to parent questionnaires regarding behavior.

Among the 25 children enrolled, five had no food dye in their diet. Hyman found no correlation between artificial food dye consumption and repetitive behaviors or externalizing behaviors; however, she did find a correlation between yellow food dye consumption and sleep disturbances.

"While this is only a pilot study and needs to be interpreted conservatively, it merits a clinical trial to determine whether food dye might aggravate behaviors in children with ASD who are at greater risk for sleep problems than other children," Hyman said.

Complementary treatments

Another abstract authored by Hyman and colleagues was based on an

analysis of the national dataset collected by the Autism Treatment Network on the use of complementary and alternative medicine in children with autism. It highlights the need for physicians to keep track of what other treatments parents may be using for their children. About 450 of the almost 2,500 children in the registry at the time the data were analysed, reported use of complementary therapies. About one-fifth of these 450 children were given a special diet at the time they entered the Autism Treatment Network. However, that rate changed throughout the first year of follow up. Between 5 and 10 percent of families who were followed over the next year stopped using a special diet and about the same number started diets over the next year.

"Many [children](#) with autism are put on special diets by their families to see if elimination of specific foods such as those containing gluten or casein will help with development or behavior. Health care providers need to ask about the use of dietary interventions so appropriate nutritional counseling can take place in the context of primary and specialty care," Hyman said. "When it comes to complementary therapies, doctors do need to ask and families do need to tell."

Provided by University of Rochester Medical Center

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