CENTER ON HUMAN DEVELOPMENT & DISABILITY
UNIVERSITY of WASHINGTON

CHDD Outlook 2010 Issue #1
News from the Center on Human Development and Disability at the University of Washington Health Sciences Center

CHDD | IDDRC | UCEDD

# UW Autism Center Study Reveals Benefits of Early Intervention for Toddlers

*by Joel Schwarz*

Four years ago Ashton Faller had no verbal speech, made no eye contact with people and avoided interacting with his parents, all telltale signs of Autism Spectrum Disorder (ASD). Today, however, Ashton presents an entirely different face to the world. Although he still has some mild delays in social skills, Ashton is in a regular kindergarten class in Everett, Washington, and people have difficulty believing he has autism.

"He fits right in a regular classroom at school," said his mother Lisa Faller. "He's smart, talking and communicating. It's just amazing the progress he's made."

Six-year-old Ashton Faller prepares to give his mother Lisa a high-five after winning a game of Connect Four. Ashton, who is now in a regular classroom, was diagnosed with autism and participated in an early intervention study for toddlers at CHDD. Youngsters like Ashton who received the intervention showed remarkable improvements in social interaction, IQ and their language ability.

Ashton, who is now 6, is among 48 youngsters who participated in a groundbreaking study at the University of Washington's Autism Center, part of the Center on Human Development and Disability (CHDD). The research is the first randomized, controlled study of an early intervention for children with autism who are younger than 2½ years of age. Those youngsters who received an intensive intervention program showed dramatic improvements in their social interaction, IQ, language ability and autism diagnosis.

The study separated the children into two groups. One group received 20 hours a week of in-home intervention – two two-hour sessions five days a week – for two years from UW Autism Center specialists. The children also received at least five hours a week of parent-delivered therapy. Children in the second group were referred to community-based programs for therapy. The progress of both groups was monitored by UW Autism Center researchers.

There was no substantial difference in the functioning between the two groups at the start of the study. But at the conclusion of the study, the IQs of the children in the intervention group had improved by an average of approximately 18 points compared to a little more than four points in the comparison group. The intervention group also showed nearly an 18-point improvement in receptive language (listening and understanding) compared to about a 10-point increase in the comparison group. Seven of the children in the intervention group – about 30 percent – showed enough improvement in their overall skills to have a change in diagnosis from autism to the milder condition known as pervasive developmental disorder not otherwise specified, or PDD NOS. Just one child receiving the community-based treatment had an improved diagnosis.

"Given that the American Academy of Pediatrics recommends that all 18- and 24-month-old children be screened for autism, it is crucial that we can offer parents effective therapies for children in this age range," said Geraldine Dawson, Ph.D., former director of the UW Autism Center and a professor of psychology. Dawson is now the chief science office of Autism Speaks and lead author of the article describing the intervention in the journal Pediatrics. "By starting as soon as the toddler is diagnosed, we hope to maximize the positive impact of the intervention," she added.

The intervention is based on a treatment created at the University of Colorado, Denver, by Sally Rogers, Ph.D. and now a professor of psychiatry and behavioral sciences at the University of California, Davis, MIND Institute. Rogers and Dawson modified the treatment to gear it to young children involved in the five-year study at the UW. This intervention, called the Early Start Denver Model (ESDM), combines behavior analytic teaching methods with developmental relationship-based approaches. The treatment is novel because it blends the rigor of applied behavior analysis with play-based routines that focus on building a relationship with the child, according to Milani Smith, Ph.D. who oversees the UW Autism Center's clinical programs and provided day-to-day oversight of the study.

Applied behavior analysis is a set of principles that can be used to teach children noted Jamie Winter, a CHDD research scientist and the intervention team director on the study. "It focuses on rewarding behavior we are trying to teach and not those we are trying to eliminate," she said. "An example would be playing with a child to put a puzzle together when the child does not have speaking skills. We might be working to teach the child to point to a piece of the puzzle rather than grabbing it or having a tantrum. We don't want to reward the grabbing or the tantrum, but reward the more appropriate way to communicate."

Winter noted that another key element in the intervention is building a relationship between a child and a therapist. "There is a high focus on positive affect – smiling, laughing and shared enjoyment – between therapist and child. We want the child to be excited and happy. This also creates opportunities to teach the child. Sometimes we might sing a song and have the therapist sing the first verse and wait until the child makes a gesture toward the therapist so both people are communicating with each other. The focus is on what we are doing with each other," Winter said. "Many of our activities might look just like we were playing with the children, but there would actually be many different teaching objectives happening including learning to feed themselves, playing with peers and doing simple chores around the house. At the end of the intervention we were working with a number of the children on some very sophisticated things such as how to negotiate with peers, what to do when you disagree with someone and how to ride a bicycle."

Parents also have a major role in the intervention and work with their child's case supervisor to determine the course of the intervention so family objectives for the child are worked into the intervention. "The philosophy of this approach is that parents are at the helm of a child's intervention and provide around the clock intervention with the child in his or her daily activities," explained Smith. "This model is interdisciplinary so there is a wide range of helpers for parents – speech and language pathologists, occupational therapists, preschool teachers, pediatricians and people at birth-to-three centers. Parents and therapist both carried out the intervention toward individualized goals for each child, and worked collaboratively to improve how the children were responding socially, playing with toys and communicating. Parents were taught strategies for capturing their children's attention and promoting communication. By using these strategies throughout the day, the children were offered many opportunities to learn to interact with others."

The study's finding that the intervention helped seven children to show enough progress so that their diagnoses improved from ASD to PDD NOS is particularly noteworthy. "It is significant because we assumed a diagnosis is stable," said Smith. "The idea that we can impact a diagnosis holds promise that we can alter the trajectory of children diagnosed with autism at age 2."

Children in this study are being followed until they all are six years of age, and a larger follow-up investigation called the Early Steps Study has been launched to further test the intervention. Early Steps, which began in 2007, will ultimately involve 108 toddlers with ASD at the UW's Autism Center, the MIND Institute at UC, Davis, and the University of Michigan.

While the findings of the new study still have to be replicated and the remarkable improvements made by children such as Ashton Faller have to be sustained over time, the intervention has provided parents like Lisa Faller with a priceless gift. "For a mom like me, the emotional connection I now have with Ashton is the biggest thing," she said. "Just to have him come over to me and tell me he loves me and give me a hug. He never did that before."

CHDD is an interdisciplinary center dedicated to the prevention and amelioration of developmental disabilities through research, training, clinical service, and community outreach. CHDD includes the University Center of Excellence in Developmental Disabilities and the Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Center.

**CHDD Outlook**

Center on Human Development and Disability, University of Washington, Box 357920, Seattle, Washington 98195-7920