

## BRAIN WAVES

New research shows social interaction therapy can change how the brain works in children with autism.

BY JENNA KASHOU

In a room belonging to Marquette University's Department of Psychology, Dr. Amy Van Hecke, an autism specialist and assistant professor of psychology, slips a net outfitted with 64 electrodes over a child's head, leaves the room, and records activity in the brain's left and right hemispheres. The test lasts three minutes.

Over two years, she's done this more than 100 times.

Developing a baseline for brain activity – specifically, whether the left or right hemisphere is more active – provided the foundation for Van Hecke's recently published research showing that social intervention therapy increases left hemispheric brain activity.

This shift is important be-

cause research into the autism spectrum has revealed increased activity in the brain's right hemisphere – which can cause stress, frustration and negative thoughts. "These kids are very smart and have the capacity to feel very deeply," says Van Hecke. "It's the perfect setup for cascading problems like anxiety, depression and even suicide."

Clay Mortl is one of those kids. By the time he entered fifth grade, he could only attend school for an hour or two a day. A simple sensory issue – the room being too hot – had the potential to send Mortl into a tailspin for the rest of the day.

In late 2011, Mortl entered the Program for the Enrichment and Education of Relational Skills (PEERS), which Van

Hecke brought to Marquette from UCLA in 2010. The program was developed from research showing therapy that increases social interaction decreases autistic mannerisms.

Social interaction is exactly the focus of PEERS: The first lesson teaches students how to have a conversation, while the goal of a later lesson is inviting a friend to hang out. A key part of the program is also parental involvement. Those who complete PEERS show significant improvement in social skills, social responsiveness, awareness, motivation, cooperation and responsibility.

Since its Marquette inception, the program has helped more than 100 teens – at a cost of about \$3,000 each. A combination of funding from Marquette, a grant from the Autism Society of Southeastern Wisconsin and private donations covers those costs but limits the capacity to 40 youth per year. The wait is more than two years. "Families feel like they win the lottery when they are accepted into the program," Van Hecke says.

The program is offered through certified providers, with most clustered in California. Van Hecke is one of only 23 certified U.S. providers who is not in that state. She and Dr. Alyson Gerdes, also at Marquette, are the only two in Wisconsin.

For Van Hecke's two-year study, she recruited 110 youth, ages 11-16, and split them into three groups. Kids with autism were sorted into "experimental" and "waitlisted" groups, and kids without autism constituted the "typically developing" group. Van Hecke then recorded each adolescent's brain activity. The experimental and waitlisted groups were tested again after 14 weeks. Kids with autism who participated in PEERS showed a

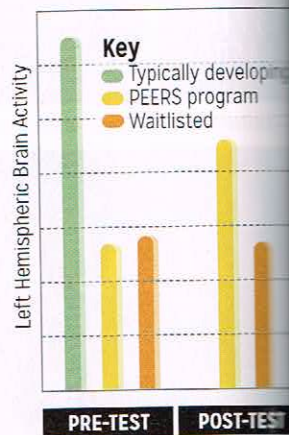
50 percent increase in left hemispheric brain activity, putting them just shy of the levels of typically developing teens.

The study also found teens who shift to more left-hemisphere dominance showed fewer symptoms of autism at the end of the program. "When you target something so basic like friendships, you can actually change the emotional activity of the brain," Van Hecke says.

Marquette is the only site in the country looking at how

### Testing Brain Asymmetry

The study of youth with autism showed more left hemispheric brain activity after they finished PEERS.



brains affected by autism respond to this therapy. The study was published in July's *Journal of Autism and Developmental Disorders*.

For Mortl, now 16, the simple act of agreeing to make at least one friend and doing social skills therapy at Marquette has changed his behavior and brain chemistry. He even acted in a school production of *The Foreigner*. "We are not curing autism," says Van Hecke, "but we can allow these kids to make friends and become more independent, they are significantly happier." ■