Scientist with Autism Uses Own Experience to Investigate the Disorder in the Lab

Childhood phobias led Rutgers postdoc to research how brain circuitry affects behavior

By Robin Lally  |  Tuesday, September 8, 2015

Jason Lunden beat the odds.

After spending years in special education programs, made to feel that he couldn’t learn, Lunden graduated from high school with honors – excelling in advanced placement courses such as chemistry and calculus. He was accepted and attended Cornell, went on to get his undergraduate degree at Rochester Institute of Technology and earned a Ph.D. in neurobiology from Temple University in Philadelphia.

Today, he is working as a postdoc with Emanuel DiCiccio-Bloom, one of Rutgers Robert Wood Johnson Medical School’s top autism researchers, studying how brain circuits affect behavior. Lunden’s situation is both unique and advantageous because he has autism – unusual, he says, for a scientist in the field of autism spectrum disorder research.

“My entire life I always knew there was something different about me,” said Lunden who has high-functioning autism, previously known as Asperger’s Syndrome. “It felt like a splinter I couldn’t pull out. Most people don’t know what this is like.”

Autism is recognized as a group of developmental disorders and is characterized by impaired social interaction, communication difficulties and repetitive behaviors. Young adults with autism spectrum disorder are less likely to have a job or be enrolled in college or an education program after high school as compared to peers with other learning disability disorders, according to the National Institute of Mental Health.

Lunden wasn’t diagnosed officially with autism until a few years ago. An only child who was raised by a very supportive single mother, who, he says, always knew he was intelligent, moved them from California to New York to be near family. Lunden spent years in special education programs for students with behavioral problems where he learned little.
“As long as you didn’t get in trouble, they’d just push you through,” said Lunden.

Things changed for the better a year before he was to begin high school when his mother moved him from New York to Greenwich, Connecticut, because she thought he would be safer and get a better education. Lunden remembers wanting to learn chemistry but because he had not been mainstreamed he was never taught how to solve even simple math equations.

“I remember saying that I was going to take calculus before I graduated which must have sounded like a joke,” said Lunden, who at the time thought he wanted to go to medical school. “It would be like a 300-pound guy saying I’m going to win Mr. Universe and be like Arnold Schwarzenegger.”

Lunden was finally put into a regular high school class. He mastered algebra, went on to tackle pre-calculus and then conquered advanced placement chemistry and calculus. But like others with autism, he was teased, bullied and often felt like a social outcast because he could not understand the emotions of others. He didn’t get the social cues that fellow students took for granted and found himself feeling isolated and depressed.

But the fear and phobias that were part of his everyday life growing up did not stop him and are the reasons he reached out to DiCiccio-Bloom about the autism research he was doing at Robert Wood Johnson Medical School. In fact, he says, having such anxiety, being scared of everything and fighting depression as a child is why he wanted to devote his scientific career to autism research.

"He really wanted to study autism and anxiety knowing the effect that it has had on him over the years,” said DiCiccio-Bloom. “I saw this as an opportunity because I study the structural differences in the brain and he studies how brain circuits affect behavior.”

Lunden’s work with DiCiccio-Bloom is being funded by a three-year National Institute of Health grant supported by an Institutional Research and Career Development Award from the National Institute of Health. The INSPIRE grant – which provides Ph.D. scientists funding to work with faculty mentors and learn how to combine ongoing research with the skills necessary to teach science
to undergraduate students – enables Lunden to do his postdoctoral research at Robert Wood Johnson Medical School.

He is investigating how stress and anxiety affect the brains of genetically engineered mice which in the laboratory have shown behavioral and biological traits similar to people with autism spectrum disorder. This mouse model of autism has many of the physiological signs of depression that someone with autism would display, he said.

The funding to work with DiCiccio-Bloom in his laboratory continues until July 2016. After that, Lunden hopes to get a position on the faculty at a non-research college teaching molecular biology, cell biology and neuroscience.

DiCiccio-Bloom thinks Lunden’s passion for answers in the laboratory will serve him well in the classroom. “I think Jason would do a great job of teaching because he is very confident about what he knows and gets excited about sharing the information with others,” said DiCiccio-Bloom.

Lunden hopes scientists will continue to gain a better understanding of the genetics, cell structure and brain circuitry of autism so that more appropriate treatments can be developed, particularly for children who often face years of emotional strife.

“When I think back to when I was a child, how super scared I was and having all those phobias, I would like for those symptoms to be able to be treated for children with autism today,” he said. “I never thought I would have this awesome opportunity to be involved in this research.”

**Tags:** autism  neurodevelopment disorders  depression