



Autism Research

Is a Cure Really the Answer?

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Dr. Donna Celano's office door is always open. Today the late-afternoon sun shines brightly in through her window, leaving a glow across her desk and on the picture frame in the corner. The sun's glow seems to reflect off her eyes as she shows a family photo. It is the look of love of a mother for her children, four in all, three boys and a girl. In the photo they are on a family vacation and they look picture-perfect, almost as if they would have to be removed from a brand new frame. But the happy picture gives no insight into the hardships and difficulties that they have had to rise above for over a decade. They as a family have been dealing with a disorder that has no cure and has no concrete cause. Celano's son Daniel, now 16, was diagnosed with autism at the age of 3.

Autism was first recognized in 1938 by Leo Kanner, a child psychologist who had seen a growing number of children with symptoms that he would later diagnose and name "autism." The term "autism" comes from the Greek *autos* which means self because of the children's seemingly self-absorbed nature. He recounted his first interactions and observations with a young patient in his 1943 article: "He seems to regard people as unwelcome intruders. When forced to respond, he did so briefly and returned to his absorption in things ... the most impressive thing is his detachment and his inaccessibility. He walks as if he is in a shadow,

Courtesy of Donna Celano



Daniel enjoys playing the guitar. It is just one aspect of his life where he doesn't allow autism to hold him back.

lives in a world of his own where he cannot be reached." Kanner's research led to an interest in studying autism that has grown more intense in recent history. Since the mid-1990s, the prevalence of autism in children in the United State has been drastically rising, and now about 1 in every 150 children is diagnosed with autism.

Daniel was diagnosed early when he showed tell-tale symptoms of autism. "When he was about a year and a half, all of a sudden he didn't talk or respond to his name. It was a big regression," Dr. Celano remembers. She admits that at first the news sent her into a grieving process. "Everyone starts out believing that their child is the perfect child. A diagnosis like that seems like the death of the perfect kid." This feeling led the Celano family, like many others, on a wild goose chase for a cure. They tried many treatments for Daniel's condition

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one in the family, especially Daniel, and caused unneeded tension within the household. Dr. Celano and her husband even looked into the Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections, or PANDAS, because Daniel suffered from recurring bouts of strep throat. These treatments proved futile, like many miracle cures for autism have done, and the family only got more frustrated as they reached out for any explanation as to exactly what was going on with their son.

including behavioral modification therapy that included a therapist spending a great deal of time in the house. This proved to be very stressful for every-

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which is the concept of long-range and short-range neural connectivity. Neurons are tissue cells located in the nervous system that transmits chemical signals back and forth from the brain to the body through connections called synapses. Manuel Casanova, an autism researcher, is currently looking into differences in the neural activity between "normal" brains and those with autism. He has found that in those with autism, there is an "over-connectivity" between adjacent neurons that could be the

Dr. John Herring, a neurobiologist at the Children's Hospital of Philadelphia (CHOP), believes there is a reason why these treatments don't work: "The prevailing view among scientists is that autism is a highly heterogeneous disorder with tons of variability in both symptoms and outcome." The most recent research on autism is moving in a few directions, the first of

cause of autism symptoms such as seizures, which are caused by an overload of neuronal firings. He has found the opposite is true for long-range neural activity which

could account for behavioral hindrances due to a lack of communication between the various parts of the brain. This "under-connectivity" can be thought of as trying to hold a conference call with people all across the country with a faulty connection. The messages are being sent, but they will not go through. The mechanism is quite complicated and not yet fully understood, but it leads to hope as scientists can envision how broad connectivity issues such as these could lead to systemic, developmental problems, as is seen in autistic children.

Scientists are also working toward unlocking the complexities of the genetics that could lead to autism. Dr. Herrington assures that the genetics involved in development of the brain and the nervous system are much more

complicated than Mendelian Genetics and Punnett squares that can isolate simple dominant and recessive genes through statistical analysis. He believes there can

be anywhere from a few dozen to a few thousand genes that could code incorrectly and cause any of the developmental problems in the range of autism spectrum disorders. Any number of rare gene mutations or mutations of common genes could be part of the autism puzzle, which means it is like searching for a needle in a haystack, or in this case a gene stack. The "wave of the future" in autism research as Dr. Herrington and many specialists see it, is going to be large-scale genetics research studies that contain thousands of participants. Only this way would scientists be able to isolate enough sets of genes

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in both "normal" cases and in autism cases. This would allow them to isolate genetic trends that could be isolated and treated and a step closer to moving toward the cause of autism, which is leading many scientists to become optimistic for an answer.

Dr. Celano would love to have an answer as to what caused her son's autism, but her hopes for a cure are not in the forefront of her mind as they were during her "grieving process" in his younger years. "I've accepted that he has a happy life. A happy autistic life." Daniel was enrolled in public school up until a year ago, when the Celano family decided to move him to the Vanguard School for Special Needs students. "Public school just wasn't working out; he couldn't deal with it. At the Vanguard School, he isn't looked at as the 'different' kid, he's just Daniel." He's just Daniel, and he's not much of a talker, but this 16-year-old boy has his own set of amazing talents. He has perfect pitch, he can



Daniel at his graduation from the Vanguard School.

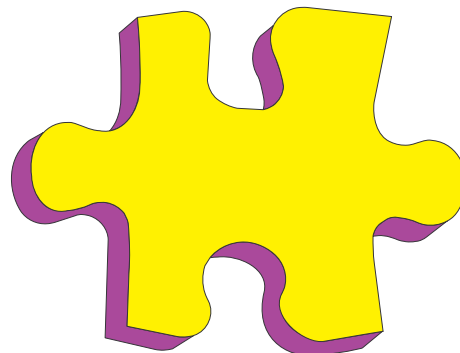
play any song on his guitar just by hearing it, and he can sing like a songbird.

The science is being unfolded. The secrets are being uncovered. Autism is a very convoluted developmental disorder that is going to take a while to crack, but the answers are coming. For now, Daniel and the others affected by autism need a different answer. They just need to be accepted.


“He’s just Daniel.” He’s a 16-year-old boy who has perfect pitch, can play any song on the guitar by ear, and sing like a songbird. He’s just Daniel, a boy who tried to sing songs with his family on a car


trip and got frustrated when they were horribly off-key. He’s just Daniel, a boy who loved to play with trains when he was young. He’s just like anyone. He is a son and a brother. He is loved by his family and he is happy. When it all comes down to it, he is not autism, he is not a statistic. He is just Dr. Celano’s little boy.


He’s just Daniel.




Facts About Autism

 Autism is a “Spectrum” Disorder. A Spectrum disorder is a disorder that has a wide range of symptoms

 Asperger’s Syndrome is a highly functioning form of autism.

 Every case of autism is different from one another.

 There are many treatments for autism but no cure.