



MRIs Link Impaired Brain Activity to Difficulty Regulating Emotions in Autism

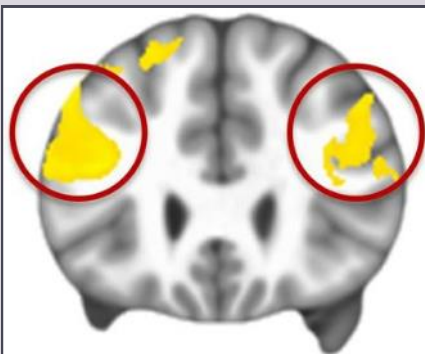
Tantrums, irritability, self-injury, depression, anxiety. These symptoms are *associated* with autism, but they're not considered core symptoms of the disorder. Researchers from the UNC School of Medicine are challenging this assertion. They have used functional MRI to show that – when it comes to the ability to regulate emotions – brain activity in individuals with autism is significantly different than brain activity in individuals without autism.

The findings, published in the *Journal of Autism Developmental Disorder* as part of a special issue on emotion regulation, suggest that improving prefrontal cortex activity could directly help individuals with autism regulate their emotions and improve serious symptoms associated with the disorder, which affects millions of people in the United States.

The discovery shows that “emotion regulation” symptoms have a biological explanation that can be visualized using fMRI. The symptoms do not seem to be merely associated with or a result of the core autism symptoms, which include repetitive behaviors, verbal and non-verbal communications problems, and difficulties with social interactions.



Gabriel Dichter, PhD



The yellow areas represent a composite of fMRI scans showing the areas of the prefrontal cortex that are significantly less active in people with autism during emotion regulation.

Carolina Institute for Developmental Disabilities (CIDD) Investigator and Associate Professor of Psychiatry Gabriel Dichter, PhD, is senior author of the paper. The first author is Dr. John Richey, former postdoctoral fellow in Dichter's lab who was part of the CIDD's T-32 training program. He is now an assistant professor at Virginia Tech. Current CIDD intern, Cara Damiano, and former CIDD graduate student, Anna Sabatino, are also authors.

“This research adds to the growing awareness that although autism is diagnosed on the basis of social impairments and repetitive behaviors, the importance of emotion regulation and all the behaviors that come with it – depression, tantrums, meltdowns, irritability – are very real and should be a focus of clinical services,” said Dr. Dichter. “Any parent of a child with autism knows that these symptoms can be pervasive. Children with autism often lack the ability to cope with difficult emotional situations, often resulting in meltdowns and tantrums that are very challenging for the family.”

There are only two FDA-approved medications to treat autism, and neither treats core symptoms; they treat high levels of irritability and aggression. “We've known for a while that we need to pay attention to emotion regulation in people with autism,” Dichter said, “but we think these data suggest a neural basis for these problems and add credence to the idea that they may be a core feature of the disorder.”