OPINION

Tracing touch

BY **EMILY SINGER**

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One of the changes to the diagnostic criteria for autism in the new edition of the *Diagnostic and Statistical Manual of Mental Disorders*, the DSM-5, is the addition of sensory issues.

The change reflects the growing awareness that sensory sensitivity — such as extreme sensitivity to light, sound or touch — can be a **central feature in autism**. That awareness is also translating into more research.

Even though many people with autism report an intense sense of touch — some children scream if anything touches their head or hands — much of the research done on sensory issues has focused on visual and auditory processing.

A new study published last month in *Autism Research* is the first study to use functional brain imaging to explore differences in **tactile processing** in people with autism. Researchers asked adults with high-functioning autism and controls to rate the pleasantness or unpleasantness of different textures, such as plastic mesh, burlap fabric and a cosmetic brush. As the participants touched these materials, the researchers scanned their brains.

The subjective ratings were largely similar between the two groups, though people with autism tended to give more extreme ratings for textures that were pleasant (the soft cosmetics brush) or unpleasant (the mesh), compared with neutral textures (the burlap). But changes in brain activity, as measured by functional MRI, differed substantially between the groups. People with autism had dampened responses to pleasant and neutral textures compared with controls. But they had heightened responses to the most unpleasant textures in parts of the brain responsible for somatosensory processing, such as the cingulate cortex and insula.

Because the study was done in adults, the researchers say it is important to look at these

differences in children as well, especially during the first few years of life when “an accurate representation of the bodily surface develops,” they write.

Two previous articles published on SFARI.org provide personal reflections on just how serious sensory issues can be for people with autism, and how they may be linked to the social deficits and **repetitive behaviors** that are defining features of the disorder.

In the first, a report on a **workshop on biomarkers**, sponsored by SFARI.org’s parent organization, recounts how a young girl with autism **described her unusual sensory experience**:

> Nicole tends to touch things repeatedly, sometimes running back into the middle of the road to step on a spot. Although this behavior seems to be a classic compulsion, in Nicole's mind it is much more.
>
> "When I touch something [that's] very hard inside, it feels like I leave something behind and then I just need to go get it," she says.

In the second, **Temple Grandin**, professor of animal science at Colorado State University and best-selling author of books on autism and animal behavior, argues that sensory issues could **underlie some of the other characteristic behaviors** in autism. She writes:

> There are some reactions to sensory overstimulation that could be confused with social deficits. Some individuals react to sensory overload by screaming, but others may withdraw. This withdrawal could be confused with having social deficits.

Extreme sensitivity to light or sound can keep people confined to the safe haven of their homes or may cause so much stress that they retreat into soothing repetitive behaviors.

Grandin argues for more research — specifically, for breaking children with autism into different groups based on their type of sensory sensitivity — in order to develop new treatments for this potentially life-altering issue.