

## Healthy Kids



## Defining Sensory Integration Dysfunction

By Katie Greeley, BS, DC, CACCP

LAST YEAR I VISITED THE INNOVATIONS AT DISNEYLAND CALIFORNIA TO SEE ALL THE NEW AND COOL ENHANCEMENTS FOR THE FUTURE. I WAS A LITTLE WORRIED ABOUT WHAT I SAW AND EXPERIENCED.

I have to admit, at first the technology was impressive, but when I started to break down what this new and improved technology was doing to our youth neurologically, I became concerned.

In my pediatric practice we work with a good number of children who display what is known as Sensory Integration Dysfunction (SID). The late A. Jean Ayres first described this as a dysfunction resulting from inefficient neurological processing. Now we are seeing a fair amount of it all the time. SID is present in children diagnosed with ADD, ADHD, high functioning autism, and even learning-challenged kids. A child who is experiencing SID has the inability, neurologically speaking, to integrate the seven senses needed to function properly.

Most children with SID present with retained primitive reflexes, such as the startle reflex, which normally disappear after one year of age. Retention of these primitive reflexes is often indicative

of a failure of certain neurological pathways to develop along the normal route. This retention could be due to our increased technology, toxic foods or even from the expression of our genetics.

What we are seeing in our offices is that the lower brain center, the cerebellum, is often being bypassed neurologically and that these children are going straight to the higher learning centers in their brains to function. I have noticed often that some children are exceptionally great at video games but have a hard time tying their shoes.

While visiting Innovations, I noticed that now instead of playing soccer with a real ball you can feel against your foot, you can now play it virtually, and instead of looking in the mirror at your reflection, a tiny camera displays your image, but your eyes never make contact.

The most shocking innovation was a coffee table exhibit with a flat screen panel displaying what appeared to be rocks and water. When you touch the screen, the picture ripples like water, but you don't get to experience the feel and temperature of water. Therefore your brain doesn't get to make the pathway of what water actually feels like. The two-dimensional display re-routes itself right to the higher center, bypassing the cerebellum which is the part of the brain we use for balance, coordination and emotion.

According to the American Occupational Therapy Association, "Normal sensory integration is central to learning to express words and thought, which in turn affects how a child learns social skills. This processing allows for a child to mentally and physically organize themselves to transition from one activity to another."

One mistake many of those unfamiliar with SID make is that the child with SID is not very bright. This could not be further from the truth. In fact, many of these sensory-challenged children are exceptionally bright; their brains are simply just wired differently.

Every child with SID is unique because his or her level of dysfunction of the senses can be very unique. In fact, when a child can't properly integrate her senses, the world around her can be very over- or under-stimulating. When a child is under-stimulated, she will seek activities that are more sensory-stimulating. The reverse is true of the over-stimulated child.

For instance, if a child is under-stimulated in the proprioceptive, or movement, sense, he will seek movement of joints or touch to stimulate that sense. That child may be the one in the classroom who can't seem to sit still or who seems to constantly touch other children. He may seem to like loudness and may often present himself as hyperactive.

If the child is under-stimulated by her sensory input, we may see her as clumsy or under-expressive. Children with low muscle tone often demonstrate decreased attention and can be labeled as lazy.



Most children who show signs of SID are often diagnosed as ADD or ADHD and are prescribed a common drug treatment such as Ritalin. Ritalin's main job is to artificially stimulate the child's nervous system in order to calm the over-active child.

If we understand why these high energy children are seeking more activity, and determine where the neurological sensory imbalance is, then we can implement a more natural treatment to achieve the same results and allow children to learn to work with their own system in a more healthy and natural way.

These children need to be taught by methods adapted to the way they are processing information. They need activities and exercises to suit their own sensory-processing needs. Most SID treatment occurs in a sensory-enriched area with tactile, visual, auditory, proprioceptive, vestibular and even taste opportunities. This can help facilitate the development of the brain's ability to process sensory input in a normal way. The goal of any sensory exercise plan is to enable children's brain hemispheres to balance to permit them to have more successes, which encourages them to take some responsibility in their improvement, thus improving their self-esteem.

A few great exercises for kids with SID use any activity that lets the body cross the midline, such as crawling, to improve lower muscle tone. Yoga is fast becoming a great tool in helping to promote relaxation as well as increased muscle tone. Some children may need special adaptations such as a seat cushion while they sit, to give some movement, or a slant board to write on or even what we call fidget toys, like tactile-enriched pencil grips, stress balls and squishy toys.

It's also important for those who create technological advancements to understand the effect

their science is having on our population. This will challenge them to create technologies to counterbalance the negative effects.

***Dr. Katie Greeley is a board-certified Doctor of Chiropractic who holds a certification from the Academy of Chiropractic Family Practice and the Council on Chiropractic Pediatrics. Her office, United Family Chiropractic Center, is located in Wood Ranch at 1070 Country Club Drive West, Suite D in Simi Valley, Calif. Dr. Greeley can be reached at her office, 805.522.2324, or at [www.unitedfamilychiropractic.com](http://www.unitedfamilychiropractic.com) for further questions.***

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