Developmental screening using a neurological approach

Catching Preschoolers Before They Fall: A Developmental Screening

by Carol Stock Kranowitz

Nothing was identifiably wrong with Ricky. His teachers thought he was just a little slow-moving. True, he never had much to say, never learned how to sling on his coat, and never let his feet leave the ground. As the music and movement teacher, I wondered why he played the triangle so lackadaisically, and why his movements seemed disorganized and purposeless. But he didn't have a *problem*. One teacher summed him up: "Ricky just isn't going to set the world on fire."

After two years at St. Columba's Nursery School, in Washington, DC, this young little boy moved on to full-day kindergarten at a private elementary school.

In mid-October, Karen Strimple, director of St. Columba's, heard from the head of Ricky's new school. "Ricky is not adjusting easily to kindergarten. He has trouble with transitions, his motor skills are weak, and he can barely make it through the day. Didn't you recognize that he might have sensory integration dysfunction? Why didn't you suggest occupational therapy? How did his problems slip by *you*?"

Karen was stumped by these questions. What was sensory integration dysfunction? How did occupational therapy apply to a healthy four year old? How, indeed, had Ricky slipped by?

In the ensuing five years, Karen and her staff have addressed these three questions, leading to the development of an innovative screening program that identifies preschoolers with sensory integration dysfunction.

What is Sensory Integration?

The term *sensory integration* describes the neurological organization of our senses. The most familiar senses are vision, hearing, taste, smell, and touch. In fact, we have several more, sometimes termed "the special senses":

- The *tactile sense* — teaching us about texture, shape, and size, and helping us distinguish between threatening and non-threatening touch sensations;
- The *proprioceptive sense* — giving us information about body position through our muscles, joints, and ligaments;
- The *vestibular sense* — telling us about gravity and space, about balance and movement, and about our body position in relation to the surface of the earth.

These senses are usually working well at a very young age. Children's brains receive information through the senses, process it, and allow them to respond automatically to incoming stimuli. Thus, most children instinctively snatch their hands from a hot stove, shift their weight from one foot to another when climbing stairs, and screech to a halt before crashing into a tree.

Not only their physical responses but also their behavioral, emotional,

and intellectual responses depend on smoothly operating integration of all their senses. Sensory integration is the foundation for moving, learning, speaking, and interacting with the environment. Sensory integration makes it possible for children to become self-regulating little people.

Some children, however, have immature or inefficient neurological systems. Because their brains do not process sensory information well, their overall development is disorderly and their participation in preschool activities is spotty, reluctant, or inept. For them, performing ordinary tasks and responding to ordinary events can be enormously challenging.

The child with tactile dysfunction, for example, may react negatively and emotionally to touch sensations, exhibiting anxiety, hostility, and/or aggression. She may appear irritable or fearful when others are close, even when nobody is touching her. She may dislike shampoos, sock seams, kisses, fingerpaints, and certain foods. She may seem unresponsive and/or over-responsive to touch. Light, passive touch, especially from behind, may distress her, even while she actively seeks to touch everything in sight.

The child with proprioceptive dysfunction may have difficulty interpreting sensations from his muscles and joints. He may be clumsy. He may tackle everything and everybody. He may show confusion when moving in space. He may exert too much or too little pressure on objects, regularly breaking toys and crayon points.

The child with vestibular dysfunction may be either oversensitive or undersensitive to movement, or both. He may hesitate to take risks or to play on the tire swing one day, yet seek scary and fast-moving playground equipment the next. He may have trouble coordinating his eye movements, may have speech and/or language difficulties, may slump rather than sit upright, and may fatigue easily.

Ordinarily, growing older means that children build upon the skills they already have. A normal child develops the skill to run after learning to walk after learning to stand after learning to crawl.

For children whose neurological functioning is uneven, however, growing older does not always mean getting better at many physical and intellectual tasks, because the basic foundation for efficiently organizing sensory information has never developed.

What does help is early intervention, such as occupational therapy.

Occupational Therapy for Preschoolers?

Occupational therapy is a health profession devoted to helping people do their jobs. We commonly think of war veterans and accident victims as requiring this kind of therapy. Actually, occupational therapy has a broader mission, which is helping healthy people with motor and behavior problems learn to perform purposeful activities. Therapy improves the functioning of a person's nervous system, which may be damaged, as in a crash victim, or may be inefficient or immature, as in a child like Ricky.

Young children, with pliable neurological systems, respond most favorably to occupational therapy. Furthermore, they love it!

How Had Ricky Slipped By?

The third question — how had Ricky slipped by? — perplexed Karen the most.

As a developmental preschool, St. Columba's has a wide net. A premise of the school is that all children, regardless of their strengths or weaknesses, develop according to nature's plan, pretty much in an orderly progression. Although some develop more slowly, eventually most children *even out* and gain the skills necessary to play, learn, and become self-sufficient.

The school's developmental orientation means that students with differing skill levels and individual timetables can blossom without feeling hurried. Because growing up is a process, not a race, children have the luxury of behaving like children. Thus, their readiness to sing "Twinkle, Twinkle," move on the playground, attend to storytime, build with blocks, and giggle with friends is more important than their ability to print letters or recognize numbers.

Although Ricky was usually a few steps behind his peers, he appeared to be moving along the developmental path. He was a late bloomer, we thought, who just needed time to grow.

But could Ricky manipulate scissors with confidence, go alone from one room to another, run and jump with vigor, chew with his mouth closed, and stick with a task he enjoyed? His new school expected him to have these skills — skills that indicated normal neurological development, skills that we hadn't realized mattered.

Karen felt she had failed Ricky by not recognizing his needs. She

resolved that she and her staff would learn about neurological development, in order to catch Rickys before they fell through the cracks.

This new undertaking was possible because the school already boasted a flagship mainstreaming program for special-needs children. Karen, first as a St. Columba's parent and teacher, and then as director, had helped develop the program. Because mainstreaming children with identified needs into the regular school environment was so successful, reaching out to children with more subtle needs was the natural next step.

An additional impetus came from the Katharine P. Maddux Foundation, based in MacLean, Virginia, which has funded our mainstreaming program since its 1974 inception. Supporting programs that improve the physical, mental, and emotional health of school children and their families, the Foundation was eager to fund a pilot program to aid children with neurological problems.

At that moment, a St. Columba's parent and pediatric occupational therapist, Lynn Balzer-Martin, PhD, OTR, stepped forward with a novel idea that would help children like Ricky. Lynn's interest in St. Columba's began as an educational consultant for the mainstreaming program. Her primary work was diagnosing and providing therapy for elementary school-age children who had academic and behavioral problems stemming from sensory integration dysfunction. She was distressed that her youthful clients had had to run into trouble at school or at home, at the age of seven or eight, before being diagnosed. By then, a child's neurological functioning — or dysfunctioning — is increasingly more ingrained. As the brain matures, it becomes less responsive to remediation through therapy.

Preschoolers, however, respond well to therapy because their nervous systems are still malleable. Lynn wanted to identify children with neurological dysfunction at the age of three, four, or five, before they reached social and academic impasses in grade school.

The big question was how to identify preschoolers with uneven neurological development. Parents, pediatricians, and teachers are generally unschooled in picking up clues to this subtle dysfunction. The average child nurturer may guess that a child's misbehavior, low self-esteem, or reluctance to participate in ordinary childhood experiences results from hyperactivity, learning disabilities, or emotional problems. *Few of us understand that disorganized behavior often stems from a disorganized neurological system.*

Even if a child is suspected of having a neurological dysfunction, then what? Preschools, in accordance with the stance of NAEYC, should not be in the business of administering formal tests to little children.

Lynn hoped to devise a screening program — sort of an "Un-Test" — that would be developmentally suitable for preschoolers. The screening process would be fun for the children. It would be simple enough for many schools to duplicate. It would be thorough enough to enable educators to distinguish between basic immaturity and possible sensory integration dysfunction in young children. It would provide data that would encourage parents to get their children into early intervention programs with appropriate therapists, so that the children could become able to function better — even beautifully — in their classrooms and in their daily lives.

The Screening for Sensory Integration Dysfunction

The St. Columba's community enthusiastically supported Lynn's proposal. In 1987, she instituted the school program in which all 90 students undergo an annual screening using a sensory integration model. The screening has three parts. The first part is a brief checklist for teachers to complete concerning a child's skills, such as the ability to manipulate classroom *tools*, put on a coat, sit quietly for circle time, and enjoy messy play.

The second part is a sensorimotor history questionnaire for parents, seeking information about a child's sensitivity to touch, reactions to playground equipment, competence in feeding and dressing, and problems with hearing, vision, and speech.

The third part is the observational screening which Lynn and I conduct together. We work with two children at a time during regular school hours. In the course of one morning, we screen 14-16 children. While Lynn records data on a chart, I guide each child in 12 activities, including spinning a top, alternating arm and leg movements, galloping, riding on a cushioned scooter board, hanging upside down from a dowel, and balancing on one foot.

When the three parts are completed, I compile the data. Then Lynn, Karen, and I meet as a team to discuss the children who have problems.

If children have only subtle problems, we suggest enrichment activities for parents to provide at home. At school, teachers monitor the

children's progress, particularly that of three year olds, who may be simply immature. If children show clear evidence of dysfunction, we suggest a full evaluation by the relevant professional, such as an occupational therapist, physical therapist, or sometimes a psychologist or speech/language pathologist.

Just as traditional screenings for hearing and vision have maximized young children's functioning, so the early investigation of developmental unevenness is proving to be valuable. When children who puzzle their teachers and confound their parents indicate through the screening that their neurological systems are disorganized, the ability to identify and address a problem comes as a great relief. Each year, about 10% of St. Columba's population receives some form of early childhood intervention. Few Rickys slip by anymore.

Teachers and families strongly support this program. A parents' discussion group allows parents whose children already receive services to assist those whose children have been newly identified, in order to ease them through the initially unsettling concept of special intervention.

Beginning a screening program is possible for any school. A school needs: (1) to team up with an occupational therapist as a consultant, (2) to present teacher-training workshops, and (3) to inform parents about the screening and how it will be conducted.

St. Columba's is eager to share the specifics of the screening program. Please contact Carol Kranowitz, St. Columba's Nursery School, 4201 Albemarle Street NW, Washington, DC 20016, (202) 363-4121.

Carol Stock Kranowitz has been teaching since 1976. With Lynn Balzer-Martin, PhD, OTR, and Karen O. Strimple, director of St. Columba's Nursery School, she has screened hundreds of preschoolers for signs of sensory integration dysfunction.