

DESCRIPTION OF THE SENSORY INTEGRATION AND PRAXIS TESTS FOR PARENTS

A. JEAN AYRES, Ph.D.

The Sensory Integration and Praxis Tests (SIPT) help us to understand why some children have difficulty learning or behaving as we expect. The SIPT does not measure intelligence in the usual sense of the word, but they do evaluate some important abilities needed to get along in the world. They do not measure language development, or social behavior, but they assess certain aspects of sensory processing or perception that are related to those functions. They also evaluate praxis or the child's ability to cope with the tangible, physical, two- and three-dimensional world.

Sensory integration is the neurological process by which sensations (such as from the skin, eyes, joints, gravity, and movement sensory receptors) are organized for use. Praxis is the ability by which we figure out how to use our hands and body in skilled tasks like playing with toys, using a pencil or fork, building a structure, straightening up a room, or engaging in many occupations. Practical skill is one of the essential aptitudes that enables us "to do" in the world.

"Dys" means "difficult" or "disordered." Sensory integrative dysfunction may result in difficulty with visual perception tasks or in inefficiency in the interpretation of sensations from the body. A dyspraxic child has difficulty using his or her body, including relating to some objects in the environment. A dyspraxic child often has trouble with simply organizing his or her own behavior.

There are 17 SIPT tests. They fall, roughly, into four overlapping types. (1) motor-free visual perception, (2) somatosensory, (3) praxis, (4) sensorimotor.

MOTOR-FREE VISUAL PERCEPTION-

These tests evaluate the ability to visually perceive and discriminate form and space without involving motor coordination. The Space Visualization is a puzzle-like test in which the child indicates which of two forms will fit a formboard. Although the child is invited to place the form in the hollow of the formboard, the motor aspect of the test does not enter into scoring the test. The examiner does keep track of whether the child used the right or left hand in picking up the blocks and, in doing so, whether he or she crossed the body's midline or tended to use each hand on its own side of the body. In the Figure-Ground Perception, the child points to pictures that are hidden among other pictures. The test measures how well a child visually perceives a figure against a confusing background.

SOMATOSENSORY-

These tests assess tactile, muscle, and joint perception. ("Soma" means "body.") During somatosensory testing the child is encouraged to "feel" rather than "see." A large piece of cardboard held over the area where the arms and hands are working helps the child concentrate on what is felt. Being touched where the child cannot see the touching often makes the child feel uncomfortable, even though none of the tactile stimuli really hurt the child. If the child's negative reaction to the testing is strong, the response is referred to as "tactile defensiveness."

On the Manual Form Perception Test, the child identifies through the tactile and kinesthetic senses unusual shapes held in the hand. On the Kinesthesia Test, the conscious sense of joint position and movement is evaluated by the child's attempt to put his or her finger at the same place the therapist had previously put it. Tactile perception is measured with three tests: a) the Finger Identification Test, in which

the child points to his or her finger that the therapist touched; b) the Graphesthesia Test, in which the child draws with a finger the same simple design the therapist drew on the back of the child's hand; and c) the Localization of Tactile Stimuli Test, in which the child points to the spot where the therapist had lightly touched the child's arm or hand with a pen. This last test leaves 14 tiny, washable spots on the child's arm and hand.

PRAXIS

Practic skill is evaluated six different ways:

- 1) Praxis on Verbal Command assesses the ability to interpret verbally given instructions to assume certain positions and to then assume them. A typical test item might be "Put your hands on top of your head." 2) Design Copying evaluates the ability to copy simple designs. 3) Constructional Praxis evaluates the child's ability to build with blocks, using structures built by the therapist as models. Both the Design Copying and the Constructional Praxis Tests require visual form and space perception, in addition to practic abilities.
- 4) Postural Praxis requires the child to imitate the unusual body postures assumed by the therapist.
- 5) Oral Praxis asks the child to imitate movements and positions of the tongue, lips, and jaw.
- 6) Sequencing Praxis asks the child to imitate a series of simple arm and hand positions.

SENSORIMOTOR

Four sensorimotor tests are included in the SIPT because their tasks require sensory integration. Bilateral Motor Coordination evaluates the ability to coordinate the two sides of the body in a series of arm movements. Standing and Walking Balance assesses the degree of sensory integration of the proprioceptive (muscle and joint) and vestibular (gravity and head movement) senses. On the Motor Accuracy Test, eye-hand coordination is measured by how well a child draws a line on top of a printed line. Executing the task requires eye muscle control, practic ability, visual perception, and motor coordination. Finally, the Postrotary Nystagmus Test measures the duration of the reflexive back and forth eye movements following rotation of the body (10 times in 20 seconds). This observation is one way of telling how well the nervous system is integrating the sensations from the vestibular system.