

100 FACTS ABOUT SENSORY PROCESSING

General sensory processing facts:

- 1 Sensory processing refers to the way the body receives, analyzes, and responds to the signals it receives from the environment.
- 2 Everyone has unique sensory needs and sensory preferences.
- 3 All of our senses work together to provide us with a general perception of ourselves in relation to our environment.
- 4 Sensory play doesn't only mean getting your hands messy. Movement play, auditory play, and visual play are all sensory experiences too!
- 5 There are eight sensory systems: the proprioceptive system, the auditory system, the vestibular system, the tactile system, the visual system, the olfactory system, the oral sensory system, and the interoceptive system.
- 6 Healthy sensory processing is the foundation for all other developmental skills.
- 7 Multi sensory experiences where all of the sensory systems are working together are crucial for normal development.

Sensory Processing Disorder Facts:

- 8 Children who have SPD struggle with detecting, interpreting, and generating adaptive responses to sensory input.
- 9 All children have unique sensory preferences and tendencies. These differences are only considered a "disorder" when they significantly impact the child's daily life in a negative way.
- 10 SPD can range from mild to severe and can impact more than one sensory system in the body.
- 11 Occupational therapists can work with children with SPD to promote more adaptive responses to the sensory input in the environment.
- 12 Physical therapists can work with children who have SPD when their sensory issues impact motor skill development and access to the physical environment.
- 13 Children with SPD often struggle with falling asleep and sleeping through the night.
- 14 Children with SPD often struggle with behavior and attention.

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Sensory Processing Disorder Facts (cont.)

- 15 A child with SPD may be hypersensitive or hyposensitive across all sensory systems or he may be hypersensitive to some types of input and hyposensitive to others.
- 16 Occupational Therapists and other professionals may use evaluations like the Sensory Processing Measure or the Sensory Profile to learn more about a child's unique sensory makeup.
- 17 There are three main types of Sensory Processing Disorders: Sensory Modulation Disorder (SMD), Sensory-Based Motor Disorder (SBMD), and Sensory Discrimination Disorder
- 18 Many children with autism spectrum disorders have sensory processing difficulties.
- 19 Not all children with SPD have autism spectrum disorder.
- 20 Sensory processing issues can often be mistaken for behavioral problems.
- 21 Studies have shown that as many as 1 in 6 children demonstrates sensory problems that are significant enough to impact everyday life.

Proprioceptive System Facts:

- 22 Proprioception refers to the way joints and muscles send messages to the brain to help coordinate movement.
- 23 The proprioceptive system allows children to move, play, and explore in a smoothly coordinated and efficient way - not too gently, not too rough.
- 24 Proprioception allows us to grade the force and direction of our movements.
- 25 Activities that promote healthy development of the proprioceptive system include: jumping, stomping, and working against resistance (heavy work).
- 26 Some children seek out additional proprioceptive input in dangerous or inappropriate ways by: pushing or running into others or engaging in excessively rough/active play.
- 27 Other children who struggle with processing proprioceptive input may appear weak, sluggish, or clumsy.

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Vestibular System Facts

- 28 The vestibular system has to do with balance and movement and is centered in the inner ear.
- 29 A child with a well-developed vestibular sense feels confident and safe during movement activities, even if his feet are off the ground.
- 30 The vestibular system allows us to climb, swing, and jump – knowing that our bodies will adapt and that we will be able to maintain our balance.
- 31 Activities that involve movement and changes in position can stimulate the vestibular system, including: swinging, jumping, swaying, and riding a bike.
- 32 Some children may appear cautious or fearful during movement activities. They may demonstrate tantrums or other extreme reactions to having their feet off the ground or they may avoid movement play altogether.
- 33 Some children may seek out additional vestibular input in dangerous or inappropriate ways by: spinning in circles or constantly moving/fidgeting in their seat.
- 34 Slow, smooth, repetitive, rhythmic movement input is typically calming to children's vestibular systems.
- 35 Fast, irregular, or unexpected movements are typically alerting to children's vestibular systems.

Visual System Facts:

- 36 Light rays follow a path through many different structures of the eye, finally reaching the visual cortex in the brain. Here, the object is identified and given meaning.
- 37 Vision helps us process, understand, and take action in our environments.
- 38 There are many other aspects of vision besides visual acuity (the ability to see). These other skills are called visual perceptual skills and they include: visual discrimination, visual memory, and visual form constancy, and figure ground perception.
- 39 Visual sensory activities include: playing I Spy, light and shadow play, and sorting activities.

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Visual System Facts (cont.)

- 40 Some children may seek out additional visual input by looking closely at objects, squinting their eyes to see objects in a different way, or seeking out moving or spinning objects like fans.
- 41 Other children may be more sensitive to visual sensory input and may struggle with being out in the bright sun, or being in environments where there is a lot of activity and motion around them.

Auditory System Facts:

- 42 The inner ear has two important organs that work together to allow us to hear. They are called the cochlea and the vestibule.
- 43 The inner ear and the sense of hearing also contribute to our vestibular system, helping us with movement and balance.
- 44 Children with healthy auditory systems are able to respond to sounds naturally, looking when their names are called or turning their heads toward a sound.
- 45 Kids with healthy auditory systems have a healthy awareness of their environment, develop motor planning abilities to respond appropriately to sounds, and generate protective responses to dangerous situations.
- 46 Auditory sensory activities include: listening to music, direction-following games, and playing musical instruments.
- 47 Some children may seek out additional auditory input by: constantly making noises with their mouths or tapping their hands or pencils on the table.
- 48 Other children may be more sensitive to auditory input and may cover their ears to protect them from sound or have tantrums/extreme reactions in noisy environments.
- 49 Children who are hypersensitive to sounds may hear noises that aren't detected by others (e.g. the buzzing of overhead lights, the whirring of the air conditioner).
- 50 Some children who are sensitive to sound may become extremely distracted by the sounds in their surroundings.
- 51 White noise, quiet music, and using a quiet voice are typically calming types of auditory input.

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Tactile System Facts

- 52 The tactile sense is how we interpret the information we get from the receptors on our skin.
- 53 The tactile system allows us to perceive and differentiate pressure, texture, and temperature and allows us to feel pain when our skin is compromised.
- 54 The ability to touch and identify an object that we can't see (e.g. a pencil buried in a child's backpack) is called stereognosis.
- 55 Tactile bins, messy play with shaving cream or slime, and water play are all examples of tactile sensory play.
- 56 Some children may seek out additional tactile input by constantly touching others, fidgeting with objects, or craving hugs and physical touch.
- 57 Other children are more sensitive to tactile input and may demonstrate extreme reactions during dressing, bathing, brushing teeth, or washing hands.
- 58 Light touch is typically alerting to the tactile system and can be difficult to tolerate for children with hypersensitivity.
- 59 Deep pressure touch is typically calming and settling to the tactile system.

Olfactory System Facts:

- 60 The olfactory system is responsible for our ability to smell/detect odor.
- 61 In humans, the olfactory system can discriminate between thousands of different odors and helps us recognize whether smells are dangerous, strong, faint, pleasurable, or foul.
- 62 The olfactory system is closely related to our limbic system, a part of our nervous system that is responsible for emotions and memory.
- 63 The olfactory system is also associated with the sense of taste, helping to create the flavors that we taste in food.
- 64 Olfactory sensory activities include: play with scratch and sniff stickers, smelling essential oils and extracts, play with scented play dough.
- 65 Some children may seek out additional olfactory input by: smelling objects like markers or glue or being drawn to strong/noxious odors.

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Olfactory System Facts (cont.)

66 Other children may demonstrate hypersensitivity to smells. They may gag or vomit when they encounter smells that aren't tolerable to them. They may pick up on odors that no one else can smell.

67 Stronger smells like lemon and peppermint are typically associated with more alert behavior.

68 Lighter smells like lavender and rose are typically associated with calmer behavior.

Oral Sensory System Facts:

69 The sensory receptors in our mouths allow us to perceive temperature, texture, and taste.

70 Our brains also receive lots of proprioceptive information from the joint of the jaw as we bite and chew different foods that provide different types of resistance.

71 Oral sensory processing also contributes to the way we move our mouths, control our saliva, and produce sounds for clear speech.

72 Oral sensory activities include: taste testing foods with different tastes/textures/temperatures, blowing bubbles, making silly faces in a mirror, and making mouth noises.

73 Some children seek out additional oral sensory input. They may frequently lick or chew on non-food objects like pencils or their clothes.

74 Children who are seeking out more oral sensory input may also make noises with their mouths or stuff their mouths with food.

75 Decreased awareness of oral sensory input may also contribute to difficulty with coordinating the movements for chewing and drinking and may affect oral motor planning and speech production.

76 When children are hypersensitive to oral sensory input, they may resist trying new foods or brushing their teeth. They may choke or gag easily. They may be very picky eaters.

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The Oral Sensory System Facts (cont.)

77 Foods that are usually alerting to the oral sensory system include: sour, crunchy, and cold foods or foods with intense tastes.

78 Foods/snacks that are typically calming to the oral sensory system include: gum, chewy candy, dried fruits, and thicker liquids that can be sucked through a straw.

Interoception Facts:

79 Interoception refers to our perception of what is going on inside our bodies and is responsible for feelings of hunger, thirst, sickness, pain, having to go to the bathroom, tiredness, temperature, itch, and other internal sensations.

80 Interoception is also associated with our sense of well-being, mood, and emotional regulation.

81 For children with hypersensitivity to interoceptive input, typical everyday sensations like hunger or having to go to the bathroom, may be extremely distracting and even painful.

82 Children with decreased sensitivity to interoceptive signals may not feel when they have to go to the bathroom. They may never feel full after eating and they may not interpret or respond to pain or temperature safely.

83 Mindfulness activities as well as alerting/calming sensory strategies may help promote adaptive responses to interoceptive cues.

Therapy Treatment for Sensory Processing:

84 Occupational and physical therapists may use a sensory integration frame of reference when treating children with sensory processing problems.

85 Therapists may use swings, slides, scooters, and spinning equipment to provide vestibular stimulation.

86 Therapy treatment may include tactile input via therapeutic brushing and other methods.

87 Sensory integration treatment is play-based and can be highly structured when necessary or more loosely structured, following the child's lead.

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Interoception Facts (cont.)

88 Sensory integration treatment is highly dependent on the individual needs and preferences of the child.

89 Therapy treatment to address sensory needs should always include consultation and collaboration between the therapist and parent/teacher to support the use of sensory strategies and activities at home or in the classroom.

90 Therapists may use the Therapeutic Listening program with children, which incorporates listening to specialized music as an auditory intervention to support sensory processing, attention, and communication.

91 Therapists focus on supporting the child's ability to self-regulate and maintain an adaptive level of arousal/alertness.

Sensory Processing Terms

92 Gravitational insecurity: An excessive fear of and hypersensitivity to everyday movement experiences.

93 Sensory defensiveness: A negative reaction to one or more types of sensory input (e.g. sound, movement, touch) that triggers a fight or flight response.

94 Sensory diet: A personalized plan of activities that is specifically designed to provide a child with the sensory input he needs to achieve an adaptive arousal level throughout the day.

95 Dyspraxia: A sensory based motor disorder that affects coordination, timing, planning and sequencing of movements.

96 Heavy work: Activities that provide proprioceptive input by requiring a child to work against resistance (e.g. pushing/pulling)

97 Hypersensitivity: A heightened or elevated level of sensitivity to sensory input.

98 Hyposensitivity: A lowered sensitivity to or decreased awareness of sensory input.

99 Habituation: The body's ability to eventually tune out or ignore repeated or familiar sensory input.

100 Sensory Seeking: Behaviors that a child engages in as a result of craving or needing a certain type of sensory input. These behaviors are typically extreme and don't match the expectations of the environment.