

Sensory Smart™ Sleep Strategies

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sensorysmarts.com

sensoryprocessingchallenges.com

Foreword by Temple Grandin

RAISING A SENSORY SMART CHILD

WINNER
NAPPA
Gold Award and
iParenting
Media Award

The Definitive Handbook
for Helping Your
Child with Sensory
Processing Issues

REVISED AND UPDATED EDITION

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Sensory Processing Challenges
Effective Clinical Work with Kids & Teens

LINDSEY BIEL

Sensory Processing 101

- 📌 We learn about the world through our senses
- 📌 Neurological process of transforming sensory information into meaningful messages
- 📌 Usually occurs automatically
- 📌 Because of unusual nervous system wiring, people with sensory issues take in/use sensory input differently
- 📌 Ranges from typical kid quirks to significant sensory difficulties seen in autism and other conditions
- 📌 Can strongly influence ability to fall asleep and stay asleep

Sensory Modulation Profiles

Hypersensitive: “Too loud”

On high alert, rigid, easily overloads. May avoid input but sensory seek when in control.

Hyposensitive: “Too quiet”

Underaroused, tuned out, hard to engage
Droopy Eeyore or revs up —> Tigger

Sensory Seeking: “Too much”

Always hungry for more input!

Mixed Reactivity: N.S. Instability

Sensory load... academic and social demands...
stress... fatigue...hunger...multiple transitions...
seasonal & food allergies/sensitivity...hormonal issues

Paper plate



Tactile Processing

- 📌 What do you feel? Where? Is it dangerous?
- 📌 Light touch (protective pathways) vs. deep pressure
- 📌 **Common annoyances:** Clothing, shoes, socks, lotion, hair washing, toothbrushing, nail trimming
- 📌 **Specific to sleep:** Pajamas, bedding, room temperature, vibrations from air conditioner/radiator/traffic



Auditory Sensitivity

- 🔊 Normal hearing threshold vs. hyperacusis
- 🔊 Filter out irrelevant noise vs. process what's important
- 🔊 High and low frequencies: hair dryers vs. airplanes
- 🔊 **Common annoyances:** classroom, sirens/alarms, auto flush toilets, hand dryers, vacuum, blender, hairdryer, kids clapping/crying/singing, fluorescents
- 🔊 **Specific to sleep:** Household noise (TV, talking) sibling snoring, noise of radiator or air conditioner, traffic, electrical and appliance buzz



Visual Processing

- 📌 See well up close and far away, converge eyes, follow moving objects, foreground/background discrimination, depth perception for stairs, ball skills
- 📌 **Common annoyances:** Sensitivity to light, pattern, glare, contrast, overstimulation in busy visual field
- 📌 **Specific to sleep:** feels lost in the dark, overaroused by light, vision issues distort dimly lit environment in a frightening way

Taste & Smell

- 📌 Smell travels directly to limbic system (emotional brain)
- 📌 Danger detection system for toxic fumes, rotten food
- 📌 Both contribute to feeding issues, along with tactile (texture, temperature) and vision (looks gross)
- 📌 **Common annoyances:** Lotions, deodorant, perfume, coffee breath, cleaning products, art supplies, bathroom
- 📌 **Specific to sleep:** smell of detergent on bedding, pajamas, body odor, kitchen smells, toothpaste aftertaste



Vestibular & Proprioceptive

- 📌 **Vestibular** system in inner ear detects changes related to gravity and speed. Internal body awareness from **proprioceptive** receptors in joints, muscles, ligaments, and other connective tissue
- 📌 **Common annoyances:** Movement challenges at recess, gym, walking, running, cars and planes. May be clumsy, break things easily, overly sensory seeking.
- 📌 **Specific to sleep:** disoriented by change in head position, gets dizzy when laying down, room may spin, craves sensory input so needs to move to locate body in space especially if lights are off and vision can't assist

Interoception

- 📌 Sense of physiological condition of the body such as hunger, thirst, heart rate, bowel and bladder fullness

Am I okay? Am I safe?

- 📌 **Specific to sleep:** may be hyperaware of body functions such as sound of own breathing or heartbeat, thirst/hunger may interfere with sleep, may need to pee frequently if sensitive to these sensations, or if undersensitive may not awaken to use toilet



Schoen, Miller, et al. 2009 –

- SPD Foundation's Sensory Challenge Protocol gauges physiological reactivity to repeated sensory stimulation by measuring electrodermal response.
- Visual (flash), auditory (siren), olfactory (wintergreen), tactile (feather) and vestibular (chair tip).
- Findings consistently support differences in arousal, particularly inability to habituate to input (gating).



Self-Regulation Skills

- 🔊 Sleep problems common in kids with sensory issues, up to 80% in kids with autism (Cortesi et. al). Combination of behavior, biochemistry, and sensory challenges.
- 🔊 Busy brains overthink day's events, feel left out if others are awake, family has inconsistent bedtime routines & expectations
- 🔊 Genetic differences result in insufficient melatonin production (pineal gland hormone regulating sleep-wake cycles)
- 🔊 Differences in brain and body wiring interfere with melatonin production. Stress hormones like cortisol may be produced all day
- 🔊 Becomes more difficult to identify a window of sleepiness
- 🔊 Nervous system overarousal interferes with brain wave shift from hi-Beta (high stimulation typical of hypersensitivity) to Delta (deep sleep)

Sensory Smart™ Sleep Strategies

- 📌 Recognize that sensory challenges are **real**
 - 📌 ask questions - kids think everyone feels as they do
 - 📌 use Sensory Screening Tools (sensorysmarts.com)
- 📌 Implement sensory strategies and modify environment



Illustration: Edmund Dulac, Princess and the Pea, 1901

Become a Sensory Detective

- 📌 1. What sensory demands are intolerable?
- 📌 2. What about the environmental context?
- 📌 3. Does the child feel safe?
- 📌 4. How can sensory smart parents better prepare the child and the environment for sleep?



Rethink Bedtime Routines

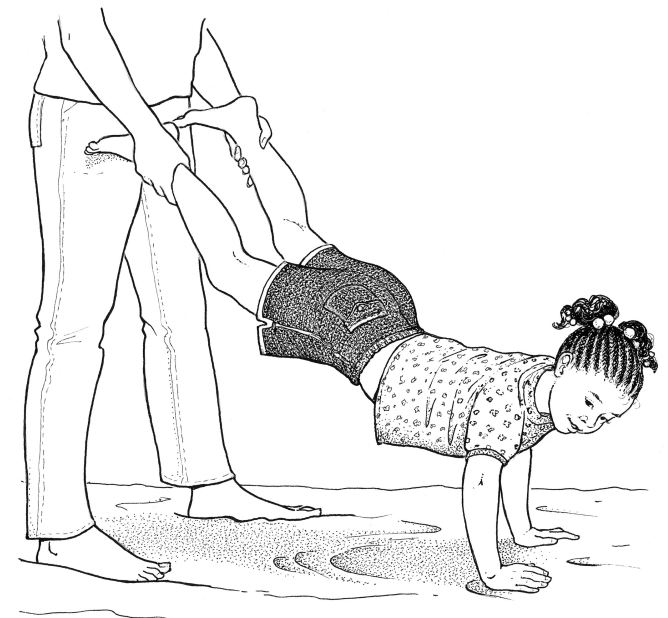
- 📌 Recognize difference in neurological ability to modulate arousal. Bedtime routine may need to start much earlier, e.g., 1-2 hours before parent wants child to be asleep
- 📌 Is bath/shower relaxing or stimulating?
If bath doesn't rev up and no drinking water try epsom salts
- 📌 What is most regulating? Reading, music, or meditation?
 - 📌 Take 5 breathing (Childhood 101 site & YouTube video)
 - 📌 guided meditations for children on YouTube, Headspace app, other apps and CDs
 - 📌 Screens emit blue light which interferes with production of melatonin/sleep. In general, avoid ~2 hours before bedtime. If used, set to Nite Mode to cut blue light or use F.Lux app

From wired to “just right”

- 📌 If a child's nervous system *craves* input, may not respond well to traditional calming input. Too large a leap in energy level. Need to taper down.
- 📌 High arousal/sensory seeking: give *intense* vestibular and proprioceptive input: climb stairs, run laps, jump on trampoline, rough and tumble play *then* start regulating activities such as massage, hugs, books, music...

Get the Ya-Yas Out

- 📌 Vestibular and Proprioceptive input function like a GPS for body and brain - essential for safety and security
- 📌 Swing, bounce, jump, push, pull, crash, throw, pound etc.
- 📌 Easy to do at home: Climb stairs, pull wet laundry out of machine, gonoodle.com, bounce on therapy ball, create crash pad, obstacle courses, wheelbarrow walk **in plank position**
- 📌 Body awareness games: Yoga Spinner, Pilates cards, Move Your Body (superduperinc.com), Feed the Woozle, Cat in the Hat I Can Do That!



Touch Sensitivity

- 🔊 Deep pressure bombards tactile receptors:
“Brushing” (DTPP) with joint compressions, massage, swaddling/burrito, sandwich, cookie dough, scrubbing
- 🔊 Sensory exploration: Sandbox, sensory bin, Kinetic Sand, Play-doh, gluten-free Wonder Dough, low-scent, low-residue Crayola Model Magic, hand squishies, Koosh ball
- 🔊 Vibration: VibraDerm Massager Brush, Vibrating snake, other vibrating toy



Sensitivity to Textures

- 📌 Nightclothes and underwear- try compression for deep pressure, i.e, snug tank and leggings vs. loose nightgown or PJs. Resources: Under Armour, SPIOworks.com, calmingclothing.com
- 📌 Seamless underwear (smartknitkids.com), briefs vs. boxers vs. commando and seamless socks if kids like to wear to bed.
- 📌 Sheets: Cotton vs. flannel vs. percale.



Make It Feel Right

- 🔌 Temperature and pillows. Cooling pillows and gel cooling pads, bamboo pillows, Bouffi Breathable 3-D Mesh (0-2 years) memory foam vs. down and so on. Resources: chilitechnology.com, BB&Beyond, Amazon.
- 🔌 Mattress: Consider density, try a pillow topper. Vibration: Sealy Tender Vibes Soothing Mattress, Sleep Number vibrating mattress, add vibrating toy to bed. Place bed against wall or place mattress on floor to promote postural security.
- 🔌 Blankets: down vs. fiber fill, etc.



Weighted Blankets

- 📌 Initially for special needs population, now mainstream. Designed to reduce anxiety and promote sleep.
- 📌 Weight: usually 10% of body weight plus 1-2 pounds.
- 📌 Person MUST be able to independently and easily remove the blanket by peeling it aside.
- 📌 NOT for kids under age 3 (pellets are choking hazard). Can use for short periods with supervision only.
- 📌 Never cover the person's head or use as a restraint.
- 📌 Do not use if respiratory, skin or other issues. Check with pediatrician if uncertain.

Resources: *The Weighted Blanket Guide*, sensorysmarts.com's helpful websites, Brookstone, Target

Weighted Sleeping Bags funandfunction.com



Lycra Compression Sheet specialsupplies.com



Oral Comforts

- Many kids with sensory issues suck thumbs and use pacifiers for longer than typical
- Vibrating toothbrush
- Vibrating teethers and Jigglers (over age 3) with supervision
- Avoid silicone beads that child can break apart and swallow
- Water in bottle, never juice or milk!



Light Sensitivity

- 📌 Lower lights as the evening progresses
- 📌 Sensitive people see and hear fluorescent lighting. Associated with visual fatigue, headache, migraine.
- 📌 Use full spectrum, incandescent, warm LED or halogen lamps with dimmers. If unable to replace, use light diffuser. *Shown: Cozy Shades.*
- 📌 Lights out:
 - 📌 Night light or total darkness?
 - 📌 Blackout shades?



Noise Sensitivity

- Ear infections can cause distorted hearing. Consider treatment for hypersensitive hearing.
- Play music over speakers, noise machines/ CDs, Sleep Phones Sheep holds MP3 player, bedtime toys such as Cloud B Sleep Sheep plays 8 soothing sounds.
- iLs Dreampad connects with an app with vibrational, ambient music only the user hears. For 12+ mos. but infants can use with supervision for <30 minutes.



Colored Noise

- 📌 MyNoise.net site and MyNoise smartphone app:
Sounds of nature, transportation and industrial noises, vocals/chants, and more.
- 📌 Colored Music Generator to customize frequencies:
<https://mynoise.net/NoiseMachines/whiteNoiseGenerator.php>



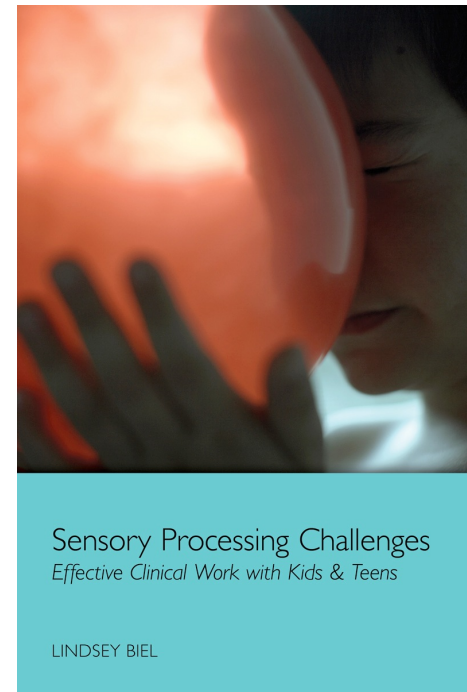
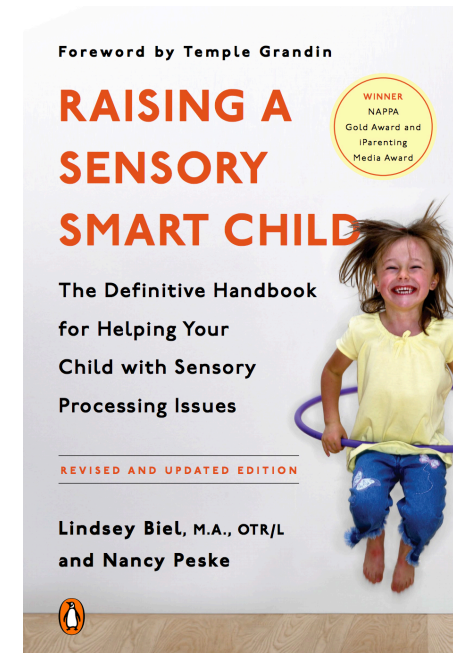
Smell Sensitivity

- 🔑 Empty all household garbage before bed
- 🔑 Avoid scented detergent and laundry softeners and strong household cleansers
- 🔑 If child is hypersensitive to smell try preferred, high-quality essential oil in a diffuser. Trial and error to find what works best. Anecdotal evidence plus a study in a neonatal intensive care unit found that pleasant odors, particularly pure vanilla essential oil, led to significantly improved breathing during sleep for preemies.



More Sensory Smart Strategies

- 📌 Practical strategies for home and school! In bookstores, libraries, online, sensorysmarts.com.
- 📌 Visit sensorysmarts.com and sensoryprocessingchallenges.com for FREE screening tools, webcasts, articles, tips, resources, and more.
- 📌 Join over 107,000 people on Facebook at *Raising a Sensory Smart Child* and *Sensory Processing Challenges* pages.



References

- Biel, L. *Sensory Processing Challenges: Effective Clinical Work with Kids & Teens*. NY: WW Norton, 2014.
- Biel, L. & Peske, N., *Raising a Sensory Smart Child: The Definitive Handbook for Helping Your Child with Sensory Processing Issues*, 3rd Edition NY: Penguin, 2018.
- Cortesi F, Giannotti F, Ivanenko A, Johnson K. (2010) Sleep in children with autistic spectrum disorder. *Sleep Med.* 11:659–64.
- De Paula Machado, A.C; de Oliveira, S.R.; Magalhaes, L., et al. (2017) Sensory Processing During Childhood in Preterm Infants. *Rev. Paulista Pediatria.* 1-2; 35(2) 92-101.
- Marlier, L., Gaugler, C., & Messer, J. (2005). Olfactory stimulation prevents apnea in premature newborns. *Pediatrics*, 115 (1), 83-88.
- Parker, E. & Koscinski, C. *The Weighted Blanket Guide*. London, Jessica Kingsley, 2016.
- Schoen, S., Miller, L., Brett-Green, B., & Nielsen, D. (2009). Physiological and behavioral differences in sensory processing: A comparison of children with autism spectrum disorder and sensory modulation disorder. *Frontiers in Integrative Neuroscience*, 3(29), 1–11.