That's right. There's more than just the classic five, says occupational therapist Monika Lesch.

We've long been taught that there are five senses: sight, sound, taste, touch and hearing. But have you ever wondered if there is a sixth sense, or even a sixth and a seventh? From my perspective, there are in fact two more senses: the vestibular sense (balance) and the sense of proprioception (motion). And, I would argue that they're actually number one and two, respectively, in priority for our development.
In *Principles of Neural Science*, it’s written that sensory organization, which provides us with the ability to interpret information about our body and environment from our sense receptors, occurs in the development of human beings before motor organization, or the ability to utilize the skeletal system effectively in a goal-directed manner.

The vestibular system, or the sixth sense, is up and working by eight weeks in utero. It works without our awareness and continues to function until death. It’s essential for the coordination of motor responses, eye movements and posture. In fact, all vertebrates—whether in the air, on land, or in the water—require the vestibular system for spatial orientation, or awareness of the body’s orientation and/or posture in our surrounding physical space. Of all stimuli that impact living organisms, Earth’s gravity is most constant. The vestibular system is specifically designed to integrate gravity and to “tell” us where our head is in space.

The vestibular and auditory senses have much in common, as they share the same “home.” The structures of the vestibular system and the structures of hearing are both located in the inner ear, or the **cochlear**. These structures, including the **bilateral semicircular ducts** and the **utricle**, are responsible for equilibrium awareness, and they’re sensitive to inner ear infections, which may lead to dizziness/vertigo. The vestibular system also shares a connection with the sense of sight, as our head position influences our vision.

Often, children seem to have insatiable appetites for movement, seeking vestibular stimulation. They may choose to spin, run through open space, “wiggle,” or seek out strong movement like that offered by extreme sports and amusement park attractions. However, while children may be somewhat more inclined to engage and push their sixth sense, some may also experience challenges integrating vestibular sensory stimuli. Some children have a flight or fight response when their posture is challenged or when their head position is changed quickly. Children who dislike this sensory input may be observers, tend to play in the sandbox and with younger children, and may be described as quiet, compliant or shy. A specific sensory diet—which is not a diet of foods, rather activities specifically designed to feed all the senses and promote health and balance—is frequently very continued on page 18
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useful in assisting these children in acquiring more functional responses to this stimulus.

With aging, postural systems—and thus the vestibular sense—are challenged less often by movement and other activity and frequently become compromised. People who have compromised vestibular function lose their sense of balance and increasingly need to watch where they place their feet to prevent stumbling or falling. Over time, this practice can result in stooped posture, or the rounded shoulder and extended head forward position frequently seen in the elderly who are at risk for compromised vestibular function. Even as early as the 20s, though, people seem less inclined to challenge their vestibular systems with fast rotary stimulation and extreme movements.

Proprioception provides essential information from muscles and joints.

Proprioception, the seventh sense, complements the role of the vestibular sense. Our sensory systems work together to organize the information from the outside world from which we safely and effectively physically navigate in various environments. Proprioception provides essential information from muscles and joints so that we know where our physical bodies are in relation to space. Proprioceptors in muscles and joints sense and continually adjust the length and tension of muscles and the angles of joints. With this information, we “know” how much force is necessary for a given task. We’ve all experienced picking up an object with too much force that we anticipated to be very heavy but was actually light, throwing ourselves off balance. The proprioceptive system was readied for a task that was different from reality. The effectiveness of this sensory system is consciously learned through experiences in which we learn to judge the amount of force necessary for specific tasks. One may say that a professional pitcher or ballet dancer has a highly developed sense of proprioception. However, all of us require effective proprioception to move through our daily lives and create efficient motor movements.

Some children also have challenges with processing this sensory stimulus. Children with inefficient proprioceptive processing may seek heavy input through “crashing and burning.” For example, they may bump into others just so heavy input is felt, fall down to seek the input, or “wiggle” a lot. Such a child may struggle with handwriting and create very faint markings. Their balance may be also be challenged as well as their muscle tone diminished.

Frequently, a person who has had a stroke has impaired proprioception, creating significant challenges in completing the most “simple”
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activities, like eating with a fork or getting dressed. Safety is also a concern with an impaired seventh sense, as an arm may get caught in doors or burned on the stove since the individual “doesn’t know” where the arm is in space.

Sensory systems are intimately related to and necessary for well-developed motor systems. So, what can we do throughout our lives to engage with and keep the sixth and seventh senses happy and invigorated? It’s just as simple as the task of keeping our sense of taste happy with delicious foods. Because our bodies are well-designed machines in need of movement, all we need to do is get moving! [See the sidebar below for ideas to tune into your “extra” senses.]

Ideas for Nourishing #6 and #7

As we age, we tend to become more habitual with aspects of our personal daily routines. Novelty decreases. We like certain foods and drinks with each meal. We frequently prepare the same recipes. We have routines of work and leisure.

Creating novelty is a key ingredient to facilitating invigorated sixth and seventh senses. Of course, physical safety needs to be kept in the forefront. But, once you know you’ll be safe, go out of your comfort zone and move your body in a new way with new focus! Here are some ideas:

- Walk a balance beam. Once you’ve mastered the beam, keep up the novelty and build a slack wire or a tight rope, very close to the ground, to walk.
- Try out a swing on a playground and discover where your threshold resides. At what point do you feel dizzy?
- Enroll in a dance class, or two or three—from ballet to ballroom, each will get you moving and tuned in to your senses.
- Practice yoga, which is excellent for providing balance, stretch and strength, and learn new positions as often as possible. Or, take up Tai Chi. Novel movement sequences are cognitively stimulating.
- Jog or walk to build tone, strength and endurance, and try varying your pace to keep the routine fresh.
- Work out with weights to stimulate and strengthen the proprioceptors. We lose muscle mass with each decade of life beginning in our 20s. However, this loss isn’t necessary and is reversible through strengthening activities.
- Ride a bike in a few different, but safe, environments.

Sources:

Monika Leski, OTR/L (registered and licensed occupational therapist), has over 30 years of experience in pediatric occupational therapy, 12 of which were in NC public schools. Monika is certified to administer the Sensory Integration and Praxis Test (SIFT) and certified in the pediatric treatment technique of Neuro Developmental Therapy (NDT) for children with a diagnosis of cerebral palsy. She has a private practice in Morganton and Boone, NC, and she can be reached at 828-438-8833 or playagaintherapy@bellsouth.net.