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## Sensory processing disorders in women or why a lady cannot be a lady

**ABSTRACT.** Why my daughter does not like it when I am braiding her hair? Why does she not want to put on a dress again, in which she looks so beautiful? Instead of acting like a little lady, she runs, bumps into people, falls, ruining her tights and a new skirt? Why is my daughter not like my friend's daughter? Mothers of girls who have problems with sensory processing often ask the above questions. They would like their daughters to have the resemblance of little ladies. This article will discuss the issues in sensory processing disorders in girls and women that affect the way they function, and the way other people perceive them. In this article, "lady" will be understood as a woman who is refined, polite, and well-spoken.

**KEYWORDS:** sensory processing disorders, women, education, integration

### Introduction

In 1955, Dr A. Ayeon Ayres wrote her first article in which she described sensory processing disorders in children. In 1998, Carol Kranowitz wrote a book 'The Out-of-Sync Child' which became an accessible and comprehensible textbook for parents whose children had problems with sensory processing. Parents felt relieved that the problems with the functioning of their children are physical, not parental. They blamed themselves for educational mistakes resulting in inadequate reactions of their children. When sensory problems were finally defined as disorders, parents wondered how it was possible for so long that nobody noticed that it was a result of processing of sensory stimuli? (Kranowitz, 2012, p. 9).

Sensory integration is a process where we collect and organise information coming from the sensory organs, to be adequately used and properly interact with the body and the environment. It refers to the relationship between behaviour and the course of nervous processes in the central nervous system. In the process of sensory integration, the brain must select, strengthen or inhibit, compare and combine infor-

mation from the senses. We cannot observe it directly in the brain, and we can only infer their existence by external symptoms (Przyrowski, 2015, p. 7–8).

The functioning of cortical centres in the brain depends on the proper operation of subcortical structures in which the main sensory processes occur, which indicates the integrity of the nervous system (Przyrowski, 2014, p. 15). Research shows that one in twenty children reveals symptoms of sensory disorders, and one in six this problem is serious enough to prevent proper functioning (Grandin, 2016, p. 100). It implies that at least one child in a classroom may have that disorder.

Not everyone who suffers from sensory disorders responds to the stimulus in the same way and is affected by stimuli to the same extent. However, sensory problems can be debilitating and do not allow proper functioning in a normal environment. The life of these people is the constant pain and inability to deal with the unpredictable reality that surrounds them. Sensory problems in any form are always real, common and require special attention. They should not be ignored. Someone who has never felt sensory overload, most likely will not be able to understand its severity, which imprints on human life. Sensory processing disorders are still disregarded by specialists (Grandin & Panek, 2014, p. 107).

### **Sensory Processing Disorder**

Jean Ayres points out that SPD (Sensory Processing Disorder) is inefficient neurological processing. Compares the brain to a big city, and nerve impulses to traffic. Good sensory processing allows easy flow of the stimulus to a specific place. Dysfunction causes a “traffic jam” in the brain in which certain sensory information is stuck. A child with sensory dysfunction often develops in a very uneven way. Some parts of the nervous system operate adequately, while others are disturbed. Children have problems with motor planning, less frequent with intelligence. A. Jean Ayres emphasises that SPD is a problem in functioning, no lack of any function because a child has as many neurons as his peers, but the problem appears in the connections between them (Ayres, 2016, p. 61–62).

A neuron is the basic unit of the nervous system, thanks to the synapse, nerve impulses can move between individual cells (Eliot, 2010, p. 39). As long as there is an excess of synapses, the brain is very flexible

and can develop in many ways. When supernumerary synapses disappear, these possibilities are exhausted, and the brain has to deal with existing connections. The decisive influence on all important connections in the brain have the child's experiences, and in the so-called critical periods, the fastest development of basic sensory skills occurs (Eliot, 2010, p. 58–59).

Lack of proper development of sensory abilities results in disturbances of sensory processing in five external senses: sight, hearing, taste, touch, smell and in two internal: proprioceptive and vestibular (Ayres, 2016, p. 51).

Carol Stock Kranowitz defines it as difficulty in receiving, organising and using sensory information by the brain which leads to a problem in creating effective interaction with the environment. Sensory stimulation provokes difficulties in making movements, focusing attention, showing emotions, creating relationships and adapting to new situations and in social contacts. (Kranowitz, 2012, p. 45).

In the further part of the article, I will describe the abnormalities in the modulation of individual sensory systems looking for the answer to the question why a lady cannot be a lady? In my article, I will focus on sensory modulation disorders.

### **Sensory processing disorders in women why a lady cannot be a lady—own analysis**

Sensory modulation disorder is the lack of the ability to control and organise stimuli through the central nervous system, which results in an incorrect reaction to stimuli (Kranowitz, 2015, p. 31).

In this article, I will first discuss problems in the functioning of the sense of touch, proprioceptive system, vestibular system, sense of sight and hearing. I will analyse examples of behaviours of people with this dysfunction described by Kranowitz and I will refer them to the everyday lives of girls and women.

The central nervous system receives a variety of information from our environment and inside of our body through tactile sensations coming from the sensory system. The skin has many types of tactile receptors that give the impression of temperature, embrace, touch. The beginning of nervous processes is their stimulation (Przyrowski, 2014, p. 32).

One of the dysfunctions of the sense of touch is tactile defensiveness, otherwise known as tactile hypersensitivity. I will consider the effects of tactile defensiveness on the example of tactile hypersensitive girls, whose reaction to hugging or kissing on the cheek is momentarily stiffness. Their parents believe that daughters do not like them, and as a result, they rarely play with them, which causes weaker contact between them. Such a defensive reaction is not only about parents but also to other close relatives, which disturbs the development of friendships and the quality of social relations. Girls are so afraid of unexpected tactile stimuli that they withdraw from playing with their peers. They cannot participate in various activities because they constantly monitor the surroundings to avoid unexpected stimuli (Przyrowski, 2015, p. 13).

The brain of a child with sensory hypersensitivity cannot effectively inhibit the sensations; he draws attention to all stimuli, even those that are useless. Children react to new experiences with vigilance, and this vigilance never disappears. The response to unexpected stimuli is the fight-run reaction, or simply withdrawal.

Healthy teeth are indicative of a beautiful smile, but girls with hypersensitivity in the oral zone will avoid brushing teeth, and every visit to the dentist will be a terrible duty for them and their parents. At the slightest touch girl can react with a scream, and even possibility of a slight touch will make her irritated or frightened. Oral hypersensitivity prevents them from being real ladies. Girls can also get squeamish if it comes to eating. They may prefer only specific food textures. They do not like food with lumps and avoid sticky foods like sticky rice.

Women where possible visit hairdresser. They are capable of washing and styling their hair every day. Girls who show tactile hypersensitivity are not able to tolerate that someone touches their hair and avoid such visits. They react by shouting or escaping. How big must be the disappointment of their mothers who want to brush their daughter's hair and style them to school.

Girls may show an excessive reaction to physical pain. Dysfunction of sensory modulation makes some girls not being able to play with other children after a delicate cut or bump; the return to play is very difficult. Their brain is not able to focus attention on something other than this tiny scratch (Kranowitz, 2012, p. 100). Individuals may also show an excessive reaction to physical, painful experiences. Also, they can consider this tiny scratch all day long, and be perceived as hypochondriacs by their relatives.

For girls with sensory hypersensitivity art classes at school can be insurmountable. They cannot stand when their hands are dirty from paint or other dirty substance. They are too pedantic, and with the smallest dirt on their hands, run to wash them. They often look for socially acceptable excuses for their behaviour, e.g. my mother does not want me to get dirty. Because of tactile hypersensitivity they cannot fully participate in activities with their peers.

New clothes may not give them joy because they are too stiff, rough or the collar is too tight. Their brain may not be able to habituate. Therefore they refuse to wear them. Labels become their biggest enemies and must be cut out. To properly thermally regulate the body, you should dress adequately for the season so that your body does not become overly cold or overheated. The tactile hypersensitivity, however, can cause inadequate dressing. Stitches in socks can irritate them and therefore refuse to wear them, and sandals may want to wear on both warm and cold days. They also refuse to wear a hat and a scarf to avoid the impression of rubbing against the skin. In summer, instead of wearing T-shirts and skirts, they may prefer pants with long sleeves and sweatshirts. Also, a light wind that blows hair on the body of hypersensitive girls can cause them frustration and nervousness, which is because their brain cannot ignore the tactile stimulus (Kranowitz, 2012, p. 101).

Tactile defensiveness can also manifest itself in harshness towards animals. The girls will not be carrying little Yorkshire Terrier on their hands, nor they will sit with their kitten on their knees because the vision of touching the animal can give them the shivers. On the other hand, in sensory modulation disorders, there is also tactile hyposensitivity, which is in the antagonistic relation to tactile hypersensitivity.

Girls can be slovenly and be unaware that they have a dirty face. They do not notice crumbs around a mouth or running nose. Hypotactile girls do not feel touch unless it is very intense. They will also not notice that their clothes or hair are in disarray or whether their socks are wet. The temperature will not determine how to dress because they may not notice that they are sweating or trembling with cold. On a hot day, they may wear a favourite jacket. Due to the lack of proper sensation of physical pain, girls can easily get hurt by neglecting a broken collarbone or finger. After the fall, these girls will always get up and say that nothing has happened to them despite several scratches or torn tights.

When playing, girls can hurt other children without understanding that they cause pain because they require intense tactile stimulation to

feel something. They also do not feel that someone is just pushing or poking them to move. As a result of not noticing the sensory stimuli their taste is often affected which can lead to food poisoning. They may prefer dishes very heavily seasoned, or simply do not taste that something is too sour, too spicy or even spoiled. The last type of tactile modulation disorder is sensory craving. People affected want tactile stimuli, and they are constantly looking for them.

Girls wanting tactile stimulation to want to touch everything and everyone in sight. They rub their hands, their arms on objects with different textures. It happens that they bite their skin for self-stimulation. In contact with others, they can disturb them by bumping into or approaching too close, there is no concept of personal sphere of other people for them, and they may not respect their privacy. It is difficult for them to understand that others do not require so much tactile stimulation. Therefore they consider their needs as obvious.

Any messy play in the mud, clay, glue or the paint is their greatest fun—the more they are dirty, the happier. Through this way of behaving, girls easily destroy their clothes, therefore are perceived as sloppy. The search for stimuli affects their way of eating. During meals, they can even throw themselves at food and stuff their mouths. They try all the dishes; they easily eat inedible things, such as plastic decorations. Also, they prefer very cold or very hot dishes, extremely sweet or bitter. They use their mouth to study the item, even after exceeding the age of 2, because the lips provide more intense tactile sensations than the hands.

Girls constantly wrap their hair around their finger and feel the constant need to walk barefoot, even on surfaces whose texture causes pain, for example, hot sand, gravel. By lacking the ability to express their desires, girls are referred to as naughty or ill-mannered because it is difficult for those around them to understand that the problem can be biological, not pedagogical.

Another sensory system is the proprioceptive system. Proprioception refers to sensory information that is caused by the contraction and stretching of muscles, joints and tendons. Proprioceptive system is as big as the tactile sensory system. Proprioceptive information flows through the spinal cord, into the brain stem and cerebellum, and some of them reach the somatosensory cortex and cerebellum. Thanks to this information, the brain can guide our movements, especially when they are outside our visual control, and shape the correct posture (Przyrowski, 2014, p. 27).

A girl who with proprioceptive hypersensitivity can avoid movement and avoid stretching and contracting muscles. It will be difficult for her to take care of a nice figure since moving will be a big challenge for her. Also, she can be very clumsy and do not feel her body at all. Due to the lack of “inner eyes”, it will be difficult for her to perform even simple activities without sight control. Because of the hypersensitivity of the proprioceptive system, girls may have a problem with some food textures, which require coordinated chewing, and the oral area muscles do not receive the necessary sensory information.

Hyposensitivity of the proprioceptive system affects low muscle tone. It makes difficult to maintain a correct posture. Girls avoid movement and lack their inner drive to play. Their characteristic behaviour is the tendency to stabilise, e.g. when writing, the elbow pressed against the ribs or when standing, squeeze the knees firmly to compensate for low muscle tone. Girls who do not feel their own body cannot use adequate strength, which can damage toys or spill drinks. The reason is the difficulty in calculating what strength should be used to raise a cup of juice or play with a doll. Also, girls may not feel full, as a result of which they can absorb enormous amounts of food. Their body does not inform them that they are already full, which can easily lead to obesity.

The last type of proprioceptive sensory disorder are girls with proprioceptive experiences cravings. Girls with this type of disorder can be very irritating to the environment due to the need for stimulation, they fall in on other people intentionally or bounce off them. They seem to behave aggressively; they may bite, kick and beat others. They can also apply strong self-stimulation to themselves by hitting their heads against the wall, biting nails, crack their knuckles. They can stamp their feet while walking or kick their heels on a chair or the floor when sitting. They feel good in very tight clothes and with tightly fastened belts. They keep chewing inedible items such as string, collar, pencil or crayon. To stimulate proprioceptively the mandible, they may consume foods that are very difficult to chew.

It is challenging to be a lady with a dysfunction of the proprioceptive system. It is difficult to take care of the correct figure and posture, and find friends who understand the irresistible urge to stimulate with proprioceptive stimuli constantly. A very important sensory system is the vestibular system; a sense of head movement in space, sense of balance. Vestibular receptors are in the inner ear and provide information to the brain of any change in the position of the head and move-

ment. Vestibular stimuli are integrated into the vestibular cords and the cerebellum. All stimuli obtained from other sensory systems apply to information flowing from the vestibular system (Ayres 2016, p. 53–54).

Dysfunctions in such an important sensory system very much disturb everyday life. One of them is hypersensitivity with intolerance to movement. Girls do not like to be on the playground, and every rotary movement makes them nauseous. Dysfunction prevents them from playing together with their peers. They move uncertainly and very carefully. Frequent motion sickness deprives them of the joy of travel. Girls tend to be very dependent and demand constant support from a trusted adult. They feel bad in elevators or on escalators. By avoiding movement, they lose the ability to keep up with others, and also, they can feel excessively fatigued.

The result of hypersensitivity in the vestibular system may be gravitational uncertainty. An inseparable element of such girls' life is fear of falling, even if there is no danger. Also, gravitational uncertainty causes fear of lifting feet off the ground, even a curb can be a big challenge for them, and when climbing stairs, they stick to the railing to feel more stable. Girls try to manipulate the surroundings to protect themselves; they require a lot of support from adults. Gravitational uncertainty causes them emotional and social problems; they always feel insecure when surrounded by other people. Also, they can have low self-esteem, through the lack of the ability to do even simple tasks. The girls sit down with legs in the shape of the 'W' to increase stability.

An opposite sensory disorder to hypersensitivity is hyposensitivity of the vestibular system, very common in children with the autism spectrum. Girls with this disorder in infancy did not have an integrated parachute response, so during the fall, they do not extend their hands forward for cushioning. The reason is the lack of sensation of movement through their hyposensitive vestibular system and as a result numerous bruises all over the body. Girls do not have an inner urge to move, but once they start spinning on the carousel, they can do it for a long time without feeling uncomfortable.

The situation is different with girls who are looking for sensory experiences with the hyposensitive vestibular system. It is hard for them to sit in one place, e.g. in a classroom, now and then they get up to sharpen a pencil. These girls are very energetic, they rock back and forth, bounce and take risky actions to provide themselves with vestibular sensations. In an amusement park, they choose horrific rides to other



children, and they do not get dizzy due to the long-lasting rotary movement. Unfortunately, the time of focusing on a given task can be very short, they quickly get bored and do not finish the what they started. They are often careless due to poor motor coordination.

The dysfunction of the vestibular system may affect bilateral coordination, i.e. using both sides of the body efficiently. Only a well-adjusted vestibular system allows efficient use of both sides of the body. Girls may have a problem in using both feet or hands at the same time. When drawing, they translate the pencil from one hand to another avoiding crossing the middle line of the body.

Also, praxis, or motor planning involving the ability to organise, develop and implement sequences of unknown movements, is disturbed by the inability to develop a correct body schema. The correct body schema arises as a result of the integration of vestibular, proprioceptive and tactile sensations and is necessary for the development of a motor plan (Kranowitz, 2012, p. 119).

It is difficult to be a real lady when the vestibular system is in charge of activities that depend on the intensity of stimuli in the environment. The sense of sight may work improperly, and it does not have to result from myopia or far-sightedness. Vision begins in the eye, where the light passing through the cornea concentrates in the lens and then falls on the retina. From the retina, the journey begins with neurons to the brain, and the light information translates into electrical impulses. The brain interprets and analyses received stimuli (Eliot, 2010, p. 271).

Another sensory modulation disorder is sight hypersensitivity or hypervision. Girls may inadequately respond to light stimuli and often cover their eyes. Avoid objects that approach them quickly and unexpectedly, such as balls. To provide the smallest number of light stimuli, they wear sunglasses, even indoors. Their eyes can be red from constantly rubbing and squinting.

Antagonistic dysfunction for hypersensitivity is visual hyposensitivity that avoids visual contact. Normally during the conversation, people try to look the speaker in the eye and observe his gestures, to best read his intentions. Girls with this dysfunction cannot rely on this kind of communication. They do not see any contrasts, edges, or delicate facial expressions. Girls may not notice the movement, and as a result, bump into other people and objects. They do not see the swings swinging or spinning carousel. As the outcome of the late reaction to obstacles in their path, they can get very bruised. The obstacle course is too much

of a challenge for them, and the lessons of physical education are a nightmare. When they do not see movement, they cannot as actively participate as their peers, which may cause them low self-esteem.

The last category of modulation disorders is the sensory craving visual hypersensitivity. The girls insist that they can provide themselves with intense light stimuli, through close and long sitting at the television or monitor. Every flickering and intense light attracts them. Their life is a constant search for visual sensations. In the case of visual dysfunctions, headaches may occur that prevent proper functioning. The image may seem blurred, and girls may complain about double vision. Dysfunctions can cause problems with reading because the letters seem to jump in front of their eyes, girls may get lost in the text, read the same words or lines several times, or simply skip them.

Visual dysfunctions make the world seem dangerous, and girls lose their sense of security. Thus, emotional stability may be lost as a result of the lack of ability to integrate visual stimuli in their brain.

The last sense that prevents a lady from being a lady is the sense of hearing. The auditory system works closely with the vestibular system in the processing of sounds and movement. The hearing is the basic ability to receive sounds.

Girls with hypersensitivity in an auditory system can plug their ears, and sudden sounds can even paralyse them. Their brain is not able to stop all sounds from the environment, so they cannot focus on one sentence. Metal sounds can scare them, such as cutlery or jewellery. Therefore, they avoid wearing jewellery that is valued by women as an inseparable piece of clothing. Also, while certain sounds are ignored by other people, i.e. the sound of a vacuum cleaner or bells, they can cause anxiety in girls with hyper hearing. Girls are always alert and sensitive to sudden sounds. Dysfunction translates into many spheres of life, if a girl is afraid of bursting balloons, refuses to participate in birthday parties or festivities where the balloon can break. She will also refuse to participate in the concert of her favourite band if the sounds are too intense. A defensive reaction to numerous sounds may be screaming or singing to drown them out.

The opposite of hypersensitivity is auditory hyposensitivity which causes girls to be unaware of sounds. The sensory seeker with hyposensitivity likes crowded places, listens to very loud music and strives for sound stimulation. Noise is her force, and she creates it with joy by clapping, shouting or stamping. Girls who are looking for listening

sensations are usually very loud, and in the classroom can be disturbed by tapping on the bench or whistling. Disorders in the sense of hearing affect the auditory memory, girls may misinterpret requests and questions, or fulfil only one request because they do not remember the other. Also, they may have difficulty memorising their readings or stories. The tone of their voice can be either too loud or too low.

## Conclusion

Sensory processing disorders complicate the life of women who would like to be perceived by the public as true ladies. Correct functioning in society is impossible through the prism of SPD. Sensory dysfunctions can be a very unpleasant experience that evokes a sense of low value in women. Incorrect integration of stimuli can occur in each of the senses, and often dysfunction includes not one, but several of them, whose functioning is closely related. Women realise that something is wrong, that their quality of life is far from the quality of life of other women. Our responsibility as a society is to understand how serious sensory processing disorder can be and how complicated is living with it. We must be vigilant because inadequate behaviour does not have to be a result of bad education.

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