

Introduction to Interoception



What is interoception?

Interoception is one of our senses that allows us to “feel” our internal organs and skin; it gives us information about our body’s internal state or condition (Craig, 2002). Interoception allows a person to recognize signals of both physical feelings and affective feelings (emotions) inside the body. Below is a list of common physical feelings and affective feelings experienced through interoception (Craig, 2002; Murphy et al., 2017).

Physical Feelings	Affective Feelings
» Hunger	» Joy
» Fullness	» Boredom
» Thirst	» Excitement
» Physical exertion	» Sadness
» Need to use the bathroom	» Calmness
» Sleepiness	» Fear
» Sensory overload	» Distraction
	» Anxiety
	» Frustration
	» Anger
	» Focus
	» Safety
	» Love

Awareness and Self-Regulation

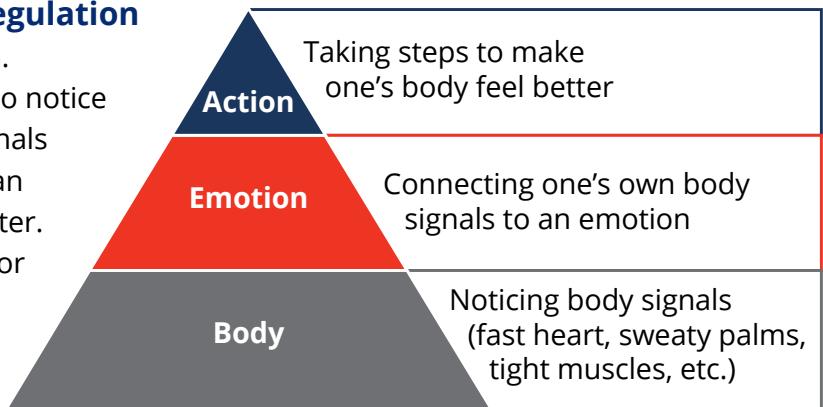
It is important to remember that everyone has unique interoceptive experiences. Some individuals may have some body signals that are too big (i.e., overpowering, noticeable only all at once) and other body signals that may be too small (i.e., muted, or body signals that go unnoticed); (Mahler, 2019; Miller et al., 2007; Endow, 2010).

Interoceptive Awareness and Self-Regulation

Interoception is essential for self-regulation. Awareness of interoceptive cues allows us to notice our body's signals and to connect those signals to a physical or emotional state. Then we can decide what to do to help our body feel better. This body → emotion → action is essential for self-regulation (Mahler, 2019).

Difficulties with interoceptive awareness can impact students in several ways.

Consider the following examples of interoceptive body signals and possible physical and affective feelings that could be associated with each. Imagine, too, the possible consequences for students with difficulties noticing or acting on signals effectively.

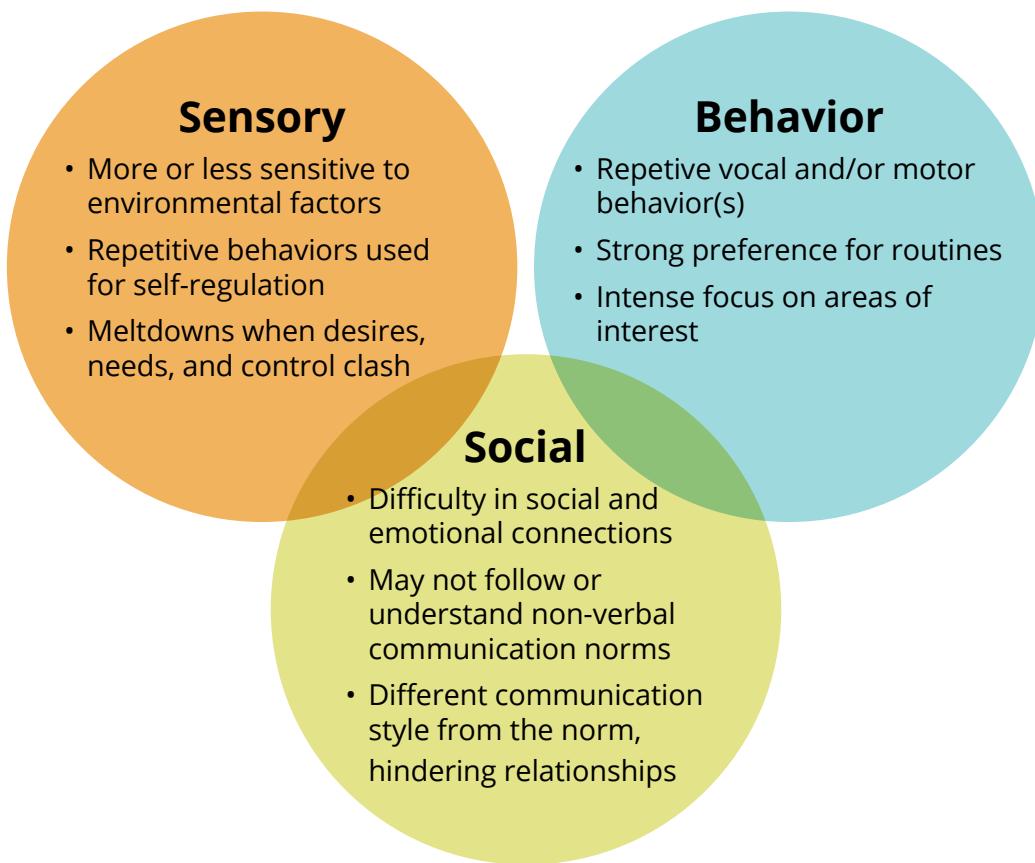


Body	Emotion	Action
Interoceptive Signals Examples	Possible Physical or Affective Feelings	Possible Action Steps
Heart racing + red/warm cheeks + sweaty palms=	Anxious	Deep/belly breathing
Stomach growling + pain in stomach=	Hungry	Request snack break
Bladder full + pain in lower stomach/back=	Need the bathroom	Request bathroom break
Dry mouth + difficulty swallowing + coughing=	Thirsty	Sip water
Difficult thinking + heavy body/head + shutting eyes=	Sleepy	Request rest break
Sweating + heavy breathing + red/warm face + woozy=	Too hot	Take off sweatshirt; go inside
Numbness in hands/face + shivering/shaking + tight muscles=	Too cold	Find warm layer; go inside



Unique Obstacles of Interoception in Autism

Challenges with interoceptive awareness often impact emotional and behavioral regulation in autistic students (Fiene et al., 2018; Hample et al., 2020; Miller et al., 2007; Zamariola et al., 2019). To understand why there are unique challenges with interoception for autistic students, first consider common traits of autism across social, sensory, and behavioral domains.



An autistic student's characteristics, challenges, or preferences can influence their interoceptive awareness. Here are examples of **internal influences** on interoception:

- » Students may have different levels of tolerance to sensory input.
- » Students may have intense focus that makes it difficult to sense bodily cues.
- » Learners may not have the vocabulary to describe physical or affective feelings.
- » Learners may feel like there is little or no control over the body if internal signals change rapidly.

How others respond to an autistic student's differences in communication and behavior can also make interoceptive awareness difficult. Here are examples of **external influences** on interoception:

- » Teachers may label feelings based on *their* own experiences, not the student's.
- » Teaching students to describe physical and affective feelings can be difficult when nonautistic (i.e., allistic) teachers have limited access to autistic internal perspectives/experiences.
- » Students may feel uncertain about when or whether to ask for help if previous attempts have been dismissed.



How to Support Interoception for Autistic Students

Educators can help students compensate for both internally and externally influenced difficulties with interoceptive awareness by using adaptations, or adjustments to the environment. Adaptations allow educators to be proactive in providing support for autistic students who may lack interoceptive awareness. Adaptations can include things like scheduled prompts to practice relaxation skills or scheduled snack or water breaks throughout the day. Adaptations can be creative and individualized or applied to whole groups. It may be helpful to gather situational data about students' habits and behaviors to inform adaptations.

Consider the following examples of challenging situations for a student with interoceptive awareness difficulties and possible adaptations:

Situation	Possible Adaptation
The student often doesn't realize they need to go to the bathroom until it is too late.	Set timers/reminders to go to the bathroom on a regular basis.
The student has trouble recognizing when they are hungry; hunger isn't suspected until they are already upset or "hangry."	Keep situational data to monitor patterns with the time of day that a student is upset. Schedule a snack time before suspected "hangry" episodes.
The student has difficulty identifying that they are thirsty and doesn't drink water unless prompted to do so.	Promote a classroom routine of drinking three big sips of water at scheduled times throughout the day, such as after recess or gym.
The student struggles to identify whether they feel hot or cold. They will put their coat on for recess even if it is warm outside and proceed to sweat, appear flushed, or sit down often.	Talk about what the temperature is and what is appropriate to wear outside at the start of each day and after lunch. Use a visual to support understanding.

Summary

Interoception is a sense unique to everyone. All brains are different, and we do not always know what is happening inside our students' bodies. Autistic students may have difficulties noticing, relating to, communicating, and acting on body signals. Therefore, we as educators must give our students the tools to describe their feelings and scaffolded support to act on interoceptive signals effectively, while being mindful not to assume or tell students how their bodies are feeling. This will help our students become more independent, self-aware, and confident in their bodies.



References

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