

DEPARTMENT FOR EDUCATION AND CHILD DEVELOPMENT
OFFICE FOR EDUCATION AND EARLY CHILDHOOD

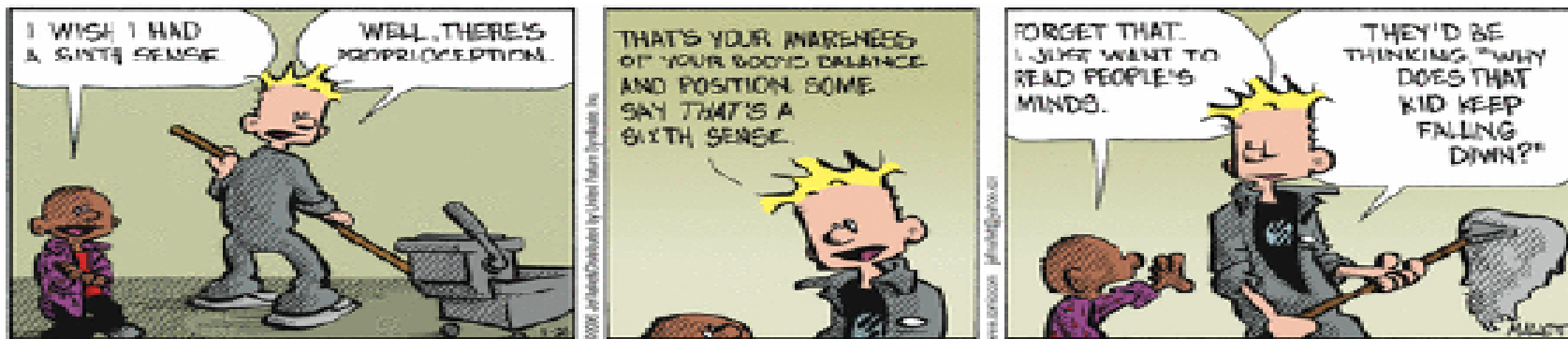
The 8th Sense: Interoception

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Government of South Australia
Department for Education and
Child Development

Proprioception

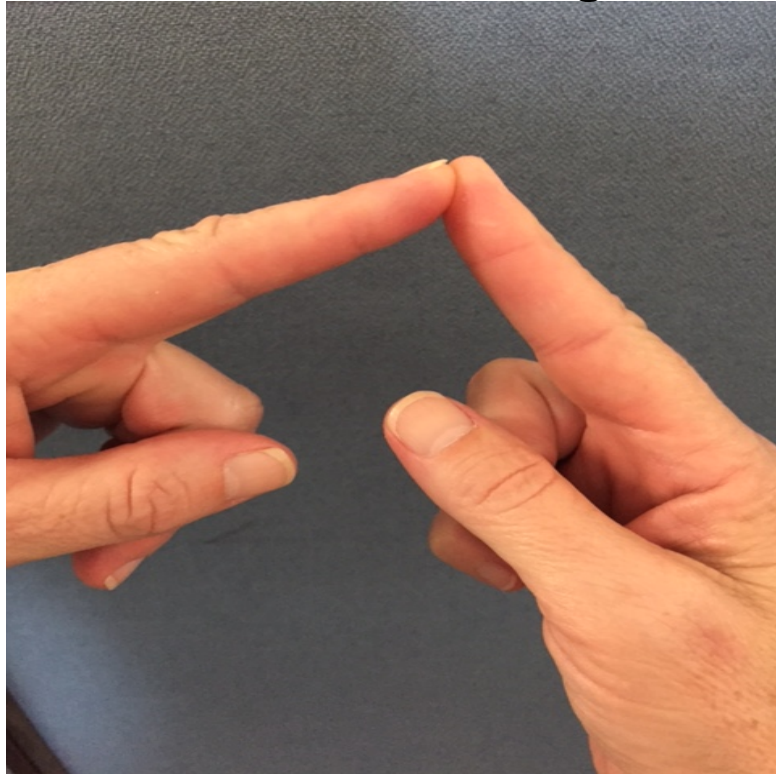


Poor proprioception:

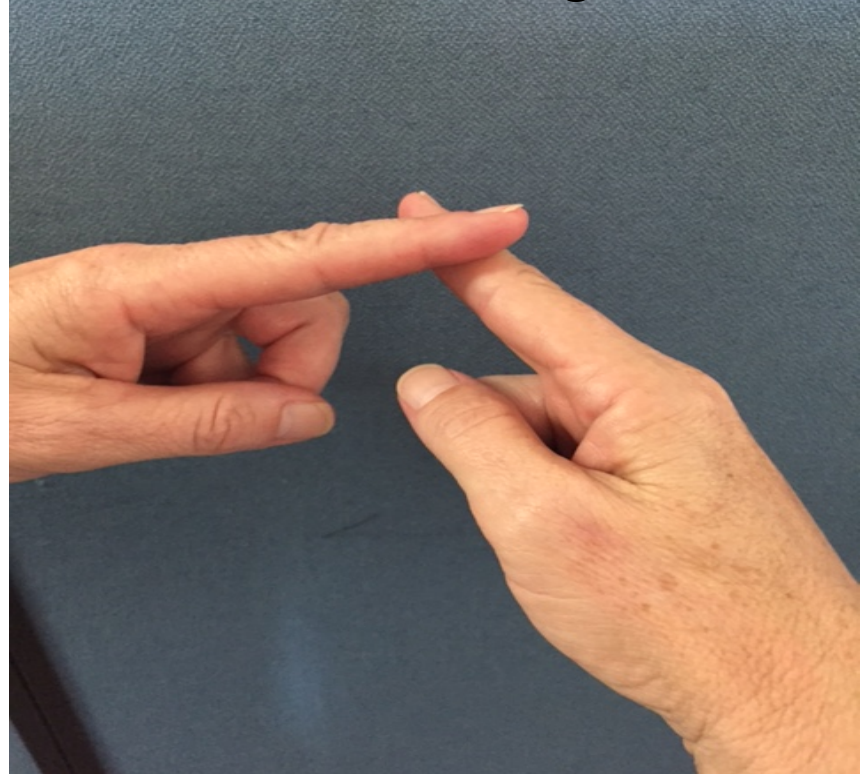


Is not from poor eye-sight, but inaccurate interpretation of sensory input by the brain (misjudge distance/space)

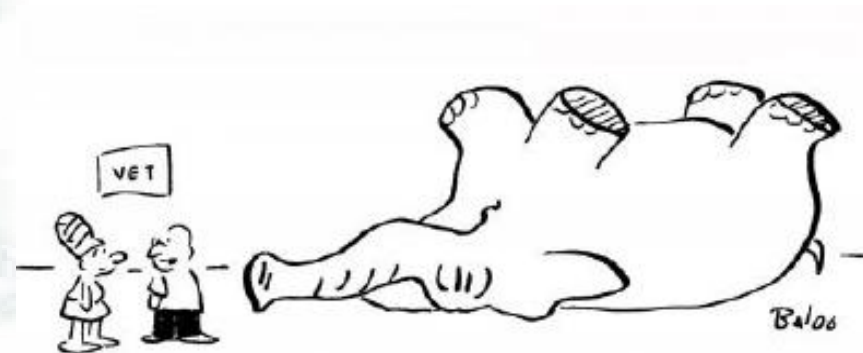
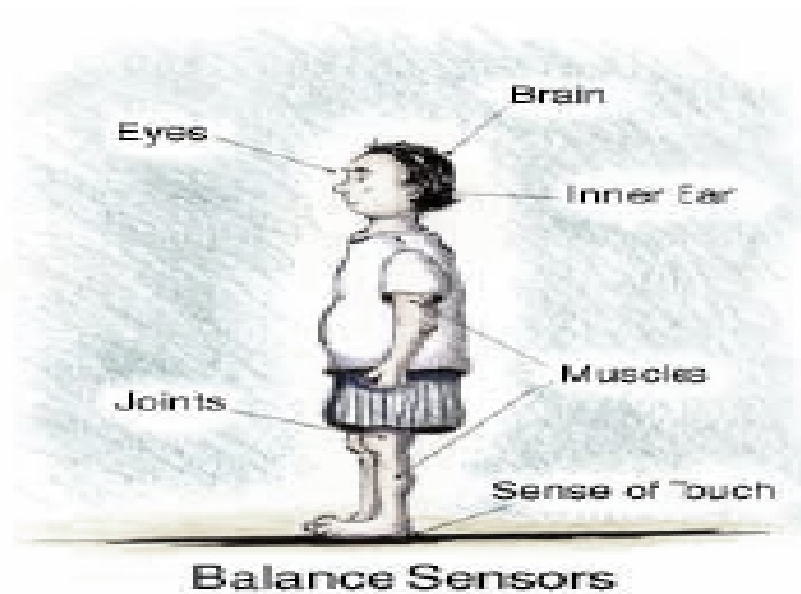
With eyes open – it is easy to sense where each finger ends



With eyes closed – it is harder to sense where each finger ends



Vestibular



"It may be his inner ear."

The 8th Sense: Interoception - Understanding one's self



Interoception

Interoceptive awareness (IA) can be broadly defined as the conscious perception of internal bodily cues such as heartbeat and breathing and is related to emotional experiences both of which are affected in individuals on the autism spectrum (Schauder, Mash, Bryant, & Cascio, 2015, Mahler, 2016).

Implication – a lack of awareness or understanding of physical internal bodily cues for students on the autistic spectrum may be a core factor in emotional overload, shutdowns, meltdowns, survival and challenging behaviour.

Interoception and learning

- We need to understand children and students' levels of interoception as part of our getting to know them
- DECD uses a specially designed sensory overview for this

What is the Sensory Overview?

- Planning tool that looks at individual characteristics across a range of senses that informs individualised planning for children and students in educational settings.
- Through this process, a number of strategies will be identified and then implemented, particularly strategies to support self-regulation



Senses considered in the overview

- Body awareness (Interoception)
- Visual
- Sense of body in space (Proprioception)
- Auditory
- Auditory processing
- Touch/textures
- Kinaesthetic
- Smell
- Other (anything else that is not otherwise addressed)
- Preferred strategies for self-regulation

Who needs to be involved?

- Family
- Student
- School



The Disability Standards for Education

Adjustments support student learning and are developed in consultation with the student & their parent or carer.

We start with interoception:

BODY AWARENESS (Interoception)	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Able to name own emotions				
Able to recognise own emotions				
Knows when thirsty				
Knows when hungry				
Knows when they need to go to the toilet				
Able to say where hurts (accurately) when injured				
Knows when they feel unwell				
Knows when getting upset				
Gets distressed easily or frequently				
Knows when becoming anxious				
Gets anxious easily or frequently				
Knows when getting frustrated				
Knows when becoming angry				
Gets frustrated/angry easily				
Seems to react to the emotions of others/places				

VISUAL	√/x	Observation/ explanation	Implication	Strategy to address or skills (apply in other areas)
Does not recognise familiar people in unfamiliar clothes or unfamiliar contexts				
Dislikes bright lights				
Dislikes fluorescent lights				
Avoids bright light				
Attracted to lights				
Attracted to shiny objects and bright colours				
Attracted to patterns and visual textures				
Attracted to darkness				

VISUAL	✓/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Does not recognise familiar people in unfamiliar clothes or unfamiliar contexts	✓ x	Recognises by clothes and haircut	Can be frustrating Relief staff need to be aware. Safety issues	Staff to introduce themselves, wear name tags
Dislikes bright lights	✓x	Gets angry if can't see, Sensitive to sun	May have difficulties engaging in learning activities	Remind hat for outside Face away from window in class
Dislikes fluorescent lights	✓	Flicking of the light is annoying	May increase anxiety/frustration decrease concentration	See if a visor in class will help. Remove bulb above desk.

SENSE OF BODY IN SPACE	√/x	Observation/ explanation	Implication	Strategy to address or skills able to be applied in other areas
Does not seem to know where body is in space				
Gets lost in familiar places/routes				
Remembers routes and places				
Avoids escalators/travellators				
Dislikes crowds or being close to others				
Difficulties catching a ball				
Difficulties kicking a ball				
Appears not to see certain colours				
Walks into doors/people/objects				
Prefers to sit at back of group				
Prefers to sit at front of group				

	√/ x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
SENSE OF BODY IN SPACE				
Does not seem to know where body is in space		A little clumsy, not excessive. Doesn't crash through others	Can hurt self and/or others, peers get annoyed	Collect more data via observations. ? Teach PMP (perceptual motor programme)
Gets lost in familiar places/routes	x			
Remembers routes and places	√		Able to get back to class by self	Can support peers to return to class after recess
Avoids escalators/travellers	x			
Dislikes crowds or being close to others	√	Needs her own space. Can get distressed. Will say "You're in my space" Worse if already feeling a little distressed	Gets distressed and distresses others when crowded	Will have her own space in class eg own mat and sit at back edge of group. Sit at short end of table (so not touching others)

AUDITORY	√/ x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Aversion to certain sounds				
Seeks or creates certain sounds				
Can hear sounds which others do not hear				
Bangs objects and doors				
Mumbles/talks/makes vocalisations to self constantly				
Changes vocalisations in reaction to environmental noises				
Changes vocalisations in reaction to emotional state				

AUDITORY	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Aversion to certain sounds	√	High pitched noises/voices/ singing	Students with particular loud high pitched voices could be a trigger	Identify students/other sounds who fit into this category. Listening to music on headphones
Seeks or creates certain sounds	X			
Can hear sounds which others do not hear	√	Has been known to hear sounds outside of the classroom	Distracting to him in the classroom	Let him listen to music through headphones after instructions are given

AUDITORY PROCESSING	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Only seems to hear the first words of a sentence				
Can follow simple one step instructions				
Can follow complex or multi-step instructions				
Finds it easier to listen when not looking at person				
Echolalic (repeats phrases)				

AUDITORY PROCESSING	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Only seems to hear the first words of a sentence	√	Might be a situational and based on individual circumstances	Miss the instructions in the classroom and could be perceived as not on task	Make sure instructions are written in easy to read and manage steps
Can follow complex or multi-step instructions	x	Distraction during instructions can certainly add to his inability to focus.	He will not complete set tasks. He does not know where he is up to	Need to break down tasks Needs explicit written instructions/worksheet with simple easy to read instruction
Finds it easier to listen when not looking at person	√	This was evident in this meeting and in the classroom	May be perceived as off task	Don't pressure him to give you eye contact, Ask him to repeat instruction in order for you to know he is on track

TOUCH/TEXTURES	√/x	Observation/ explanation	Implication	Strategy to address or skills able to be applied in other areas
Does not like shaking hands or being hugged				
Seeks/uses firm touch/deep pressure (incl. hitting)				
Seeks/uses light touch				
Aversion to certain fabrics/textures				
Attracted to certain fabrics/textures				
Very sensitive to pain and temperature				
Does not indicate sensitivity to pain or temperature				
Attracted to mouthing/chewing certain textures/things				
Avoids particular textures of food & drink				
Avoids particular colours/smells of food & drink				
Preference for food to not touch other food on plate				

TOUCH/TEXTURES	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Does not like shaking hands or being hugged	√ X	Depends, likes holding hands When agitated doesn't like being touched When happy affectionate with family	Is a way of gauging agitation level	Monitor and provide regulatory prompts when agitation appears to be increasing
Seeks/uses firm touch/deep pressure (incl. hitting)	√	Especially in bed, gets under cushions in lounge, At school likes hitting fit balls with his head Has a body sock at home	Disruption to peers if hitting head more disregulated at school	Access to body sock at school in sensory room

Tries to avoid using fine motor skills				
Enjoys using fine motor skills				
Difficulties with fine motor skills				
Tries to avoid running and/or climbing				
Enjoys running and/or climbing				
Difficulty running and/or climbing				
Tries to avoid riding a bike	KINAESTHETIC			
Enjoys riding a bike				
Difficulty riding a bike				
Poor balance				
Has extremely good balance				
Enjoys/seek out swings				
Enjoys/seek out trampolines				
Enjoys/seek out slides				
Flaps hands when happy				
Flaps hands when anxious				

KINAESTHETIC	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Tries to avoid using fine motor skills	x√	At kindy avoids cutting, writing, colouring. At home likes dot to dots, drawing, tracing over letters, loves lego	Kindy/School environment may be impacting upon ability to undertake these tasks, so she is not able to develop further at site	Provide explicit instructions as to what she is required to do. Needs to see finished product modelled prior to starting.

SMELL	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Avoids/dislikes certain everyday smells				
Attracted to certain smells				
OTHER	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Rocks when.....				

SMELL	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
Attracted to certain smells	√	Loves the smell of deodorant.	Can be too much for some students and staff	Teach how many sprays/puffs to use of deodorant. Possible put some on a cloth for him to sniff

Rocks when.....				
Tired, angry, frustrated generally negative feelings		Sometimes side to side, when tired bored, comforting thing Rocks backwards and forwards (fists clenched) when experiencing 'stronger emotions'	Staff can use this to monitor her emotional state	Staff to monitor and clarify"/ prompt what is "wrong". When strong emotions prompt interoception activity

	√/x	Observation/explanation	Implication	Strategy to address or skills able to be applied in other areas
ABLE TO SELF REGULATE UNAIDED At home In class In the yard Other				

How student presents	WHEN:	Where	Strategies
	happy	In classroom/yard/home/community	
	calm	In classroom/yard/home/community	
	angry	In classroom/yard/home/community	
	upset	In classroom /yard/home/community	
	frustrated	In classroom /yard/home/community	
	anxious	In classroom /yard/home/community	
	Other – detail	In classroom /yard/home/community	

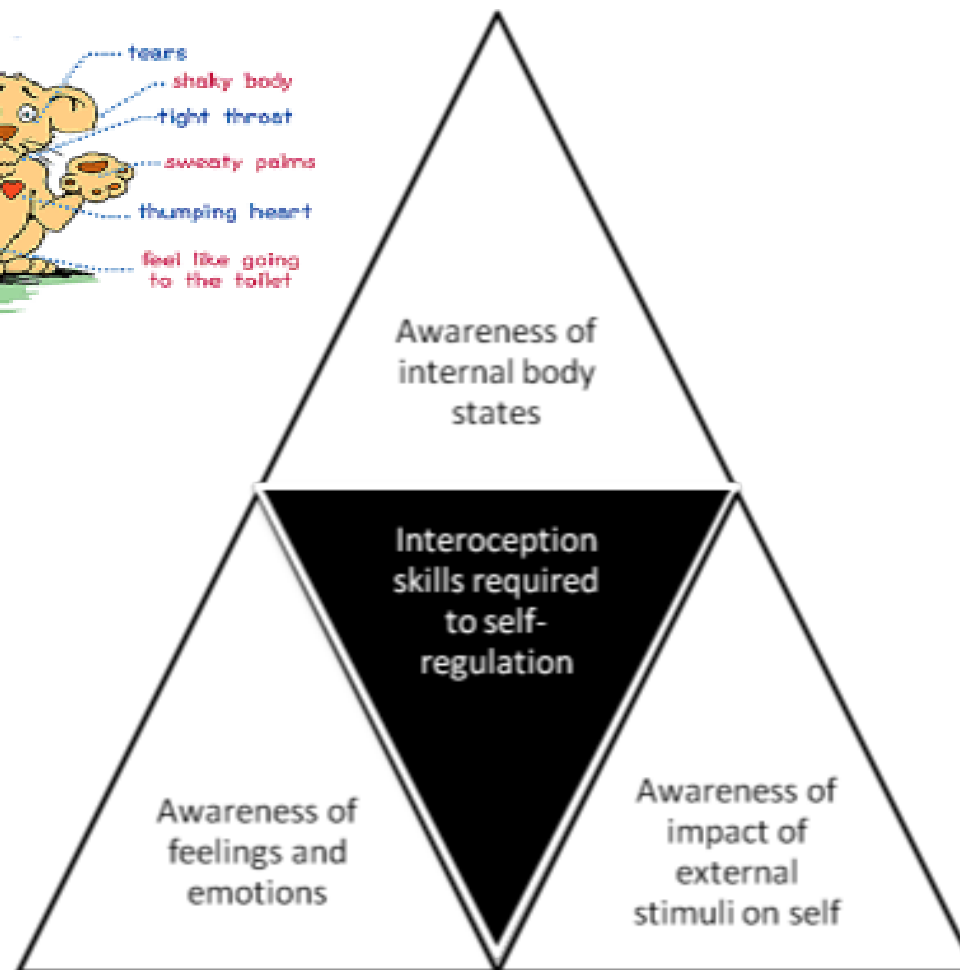
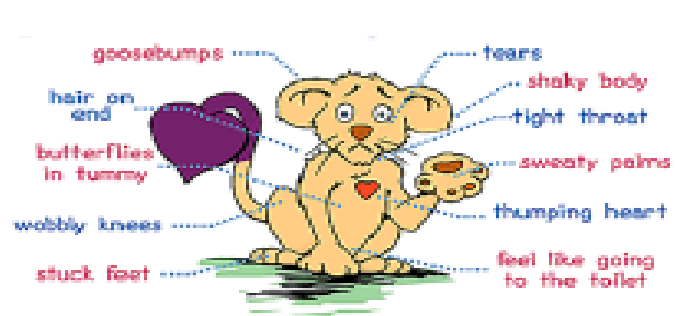
<p>Same as angry. May cry May mumble in a grizzly way. Body tenses Jerky movements Higher pitched tone Crying motions but without tears</p>	<p>upset</p>	<p>In classroom yard/ home/ community</p>	<p>Distraction e.g. put hands on head, put hands on bum etc. Interoception breathing exercises. Breathing in through nose and out through mouth. Butterfly breaths – putting arms up in relation to the breath and down when breathing out. After a few times crazy butterfly which is the same as above but fast Calm tone of voice and say: “ Everything is going to be OK, we can find a solution”</p>
<p>Gets clingy to adult. Tries to hide, may yell, throw things, may repeat the same thing over and over, cries.</p>	<p>anxious</p>	<p>In classroom yard/ home/ community</p>	<p>Collect data to try and find out why he’s anxious to develop effective support/prompts to problem solve Reassure verbally: “Let’s work this out.”</p>

Review:

- Sensory preferences and difficulties change over time and context
- Bi-annually for Preschool & Primary School and Annually for High School should capture most of those changes

The 8th sense in action

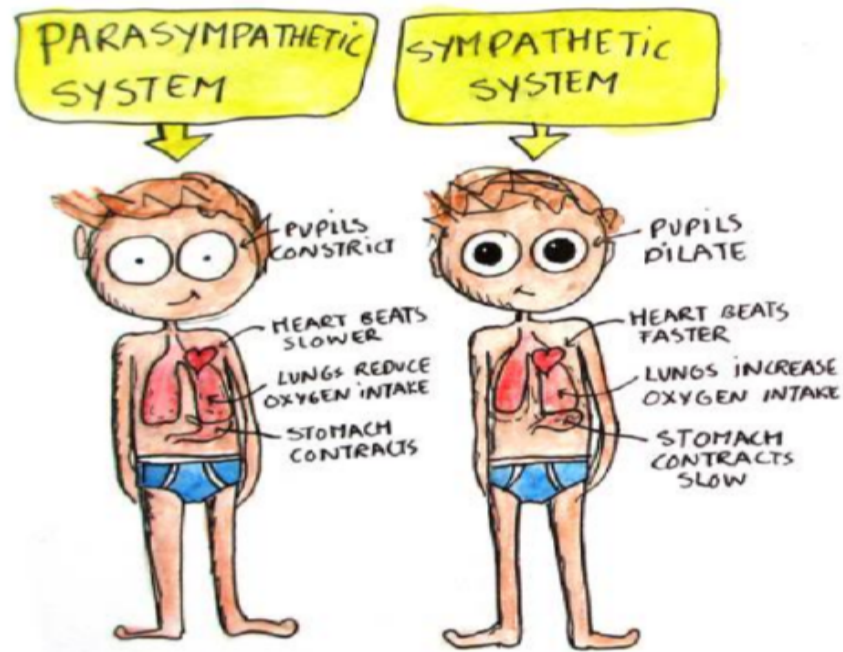
- Interoception is key to co and self-regulation
- Poor interoception leads to meltdowns, shutdowns and 'survival behaviour'
- Good interoception improves learning and engagement



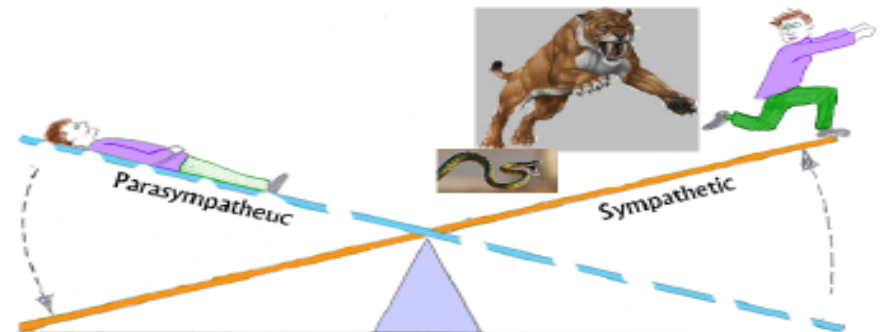
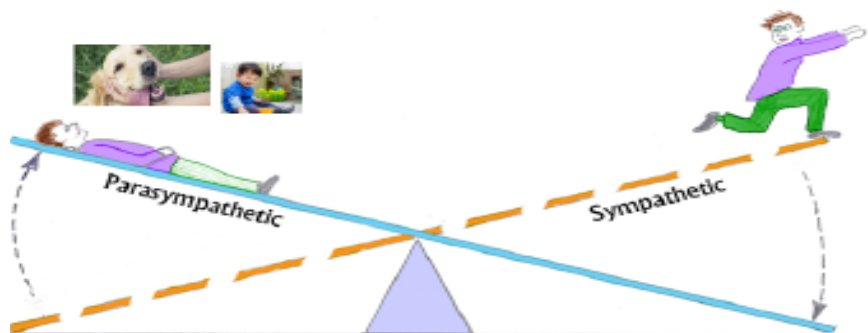
The air hurts my face



DepressedAlien.com



The parasympathetic (calming down) and sympathetic (fight/flight/freeze) systems cannot be increasing at the same time. The sympathetic system is activated by the excitatory neurotransmitter noradrenaline in the brain, whilst the parasympathetic system is activated by the inhibitory neurotransmitter acetylcholine.



The Nest:

An Interoception Project

Is combining the explicit teaching of interoception to improve:

- The awareness of students of their own emotions
- The ability of students to monitor and respond to their emotions
- The engagement of students in learning

With strategies from the UK that have been found to be the most effective strategies to promote inclusion in schools – **flexible withdrawal spaces open to ALL students, whenever they need them.**

Fight, Freeze, Flight

- Students who have yet to develop good interoception require guidance and support to know when to go to the nest.
- Students MUST access the nest BEFORE they the sympathetic nervous system cascades into fight/flight/freeze
- Students NEED to take their work with them, as the nest provides activities to connect to themselves (interoception or mindful body awareness) AND a space to engage with their work

What happens:

- **Classes visit Nest once as term as a class to revisit process**
- Students do interoception activities as whole class activities daily (as decided by each site)
- Students can request or be given a 'Nest pass', which they take to the Nest, with their work
- Student arrives in the Nest and takes an interoception activity card to do (or is guided to do an interoception activity) and does this in the quiet end of the room
- Once ready to work, student does their work at the classroom end – adult support as needed
- Students can ask or are prompted to return to class when they have completed their work.
If they choose to remain they do additional interoception activities around feelings

How interoception program works most effectively:

- All students do the interoception activities for a few minutes at a time, as part of their regular class on a regular basis – ie on arrival and before/after recess/lunch
- They learn the associated vocabulary (provided in the activities section of the Interoception 101 pack) and use it regularly
- Staff model the activities
- Children/students are encouraged to reflect on what they are learning and use it in new contexts (follow on activities are provided in the activities booklet)
- It is combined with a flexible interoception/work space to maximise effective inclusion

Feeling – hand muscles



Image – hand relaxed, resting on thighs



Image - hand stretched out



Image – hand relaxed, resting on thighs



Image - hands stretched out with big question mark

What was the point of that?

Children/students who are yet to or still developing their sense of interoception may not know how to feel the difference between relaxed and tense muscles. This can lead to difficulties in writing for example when the pen/pencil is gripped too hard resulting in pain &/or tiredness whenever the child/student writes which can lead to work refusal.



Benefits of learning interoception

What students say:

- Doing interoception helps me feel better
- I can do my work more
- It helps me calm down then I can go back to class
- When my pulse is fast I know I need to slow it down. I can learn better when my pulse is slower.
- My head is tight when I am angry, now I know how to relax it again

Benefits of teaching interoception

What teachers say:

- The students get back to work quicker.
- There are less disruptions in class.
- I am more aware of why things happen.
- It is easy to teach and the kids love it.
- It has freed up time for me to focus on things other than behaviour.
- Now I know why the 5 point scale didn't work, ... just had no idea how he felt until it was too intense to manage.
- It teaches kids to get to know when they are getting angry, so they can start to learn how to control their anger

Interoception trial at a SA DECD Primary School

Types of behaviour	Increase or decrease AFTER 8 weeks (quantitative)	Increase or decrease AFTER 2 terms – qualitative evidence
Sustained off task behaviour	50% DECREASE	Continued decrease
Major disruption of class learning	80% DECREASE – across school	Continued decrease EXCEPT in the 3 classes not teaching interoception. Students request interoception in order to facilitate learning
Yard incidents reported	51% DECREASE	Continued decrease and increase in kind and pro-social behaviours
Time to settle down to work after recess	60% DECREASE	In all classes that use interoception after recess, work is able to commence immediately after interoception activity
On task/engaged in learning	Individual variations, but all significantly increased	Student requiring 1:1 no longer requires 1:1, all other students increased on task/engagement in learning

References

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Interoception 101

INTEROCEPTION EXPLANATION, INTEROCEPTION TRACKING SHEET AND INTEROCEPTION ACTIVITIES

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