

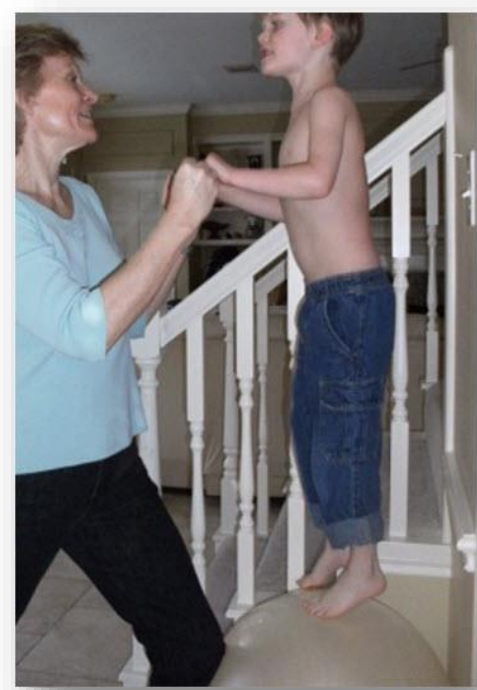


DIGITAL LEARNING CONFERENCE

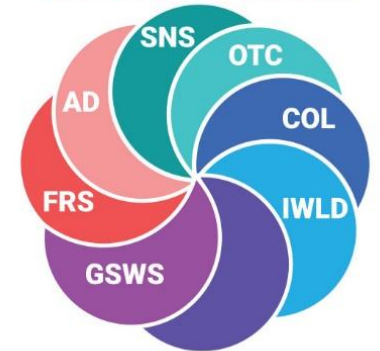
Childhood Learning Differences, Sensory Integration & Movement Still Matter In a Digital Learning Environment

Region 4 DLC 01 11 2022

Gayle Y. Fisher, M.Ed., Ed.Tech.
Gayle.Fisher@usa.net



GETTING SORTED



Learning Goals

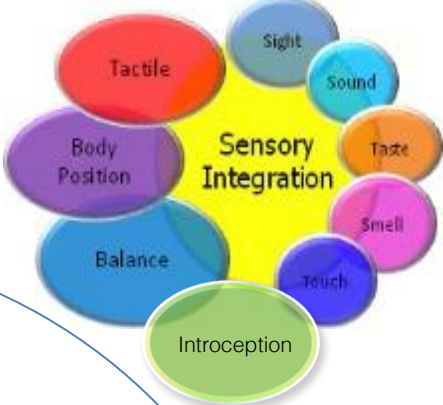
- 1. The child's learning.**
- 2. What is going wrong?**
- 3. What can you do about that?**

It's all about the
Movement!



Social Emotional Learning

Movement-Based (Learning), Well-Running Machine

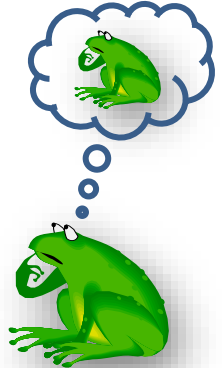
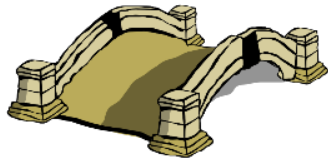


Self-Directed Academic Learning

Intrinsic Motivation



Positive Behavioral Re-Direction & Self-Regulation



How The Brain Transports Messages

Messages from the totally unique child's Central Nervous System



Sensory Seeking
vs.
Sensory Averse/Avoiding



There are 4 more:

- Vestibular (balance)
- Proprioceptive (body position)
- Tactile (different from touch)
- Interoception (body awareness)

<http://www.economist.com/news/science-and-technology/21601809-potent-source-genetic-variation-cognitive-ability-has-just-been>

Neural Synapse

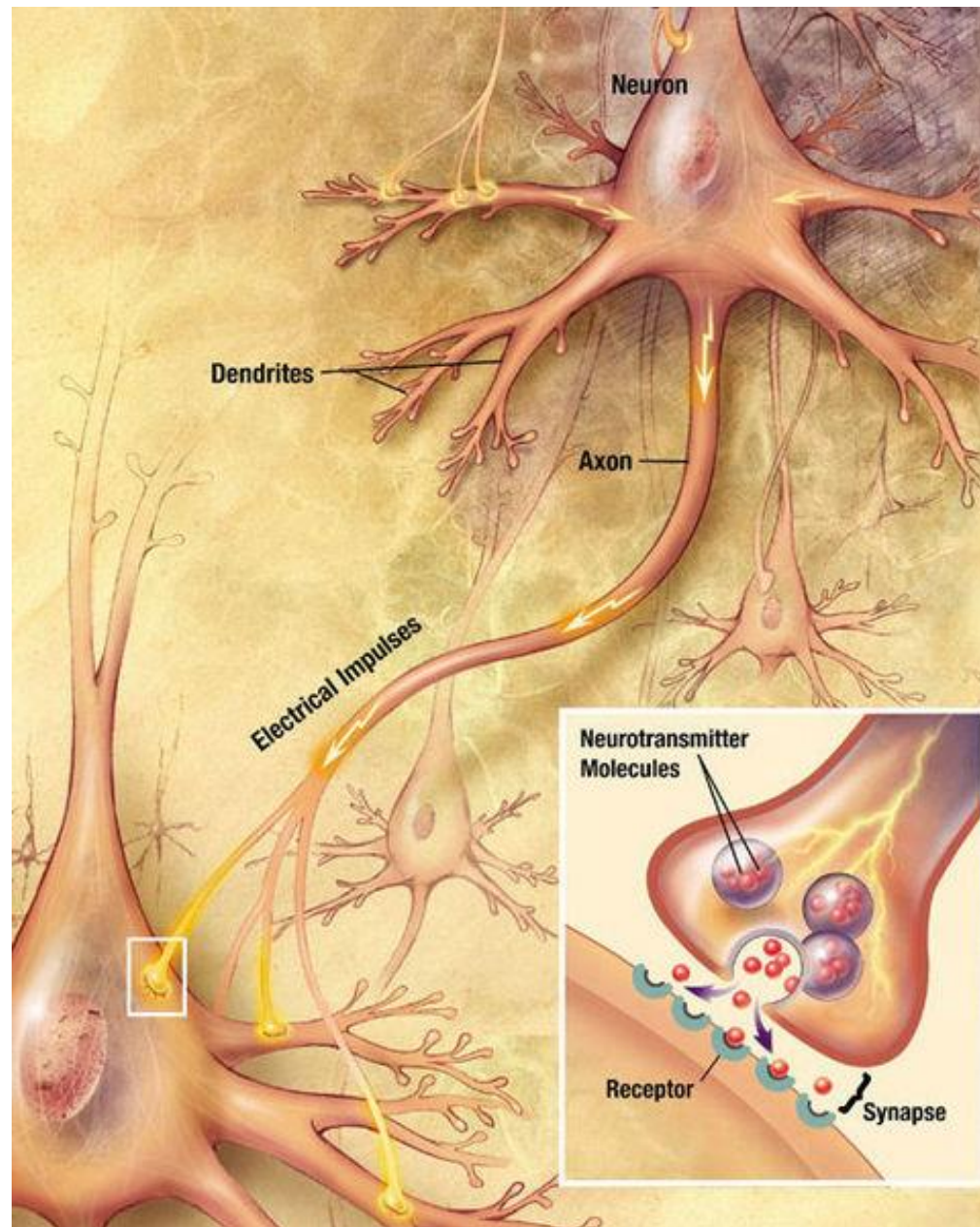
Anatomy of a Neuron

<http://www.khanacademy.org/science/biology/human-biology/v/anatomy-of-a-neuron>

Neural Synapses

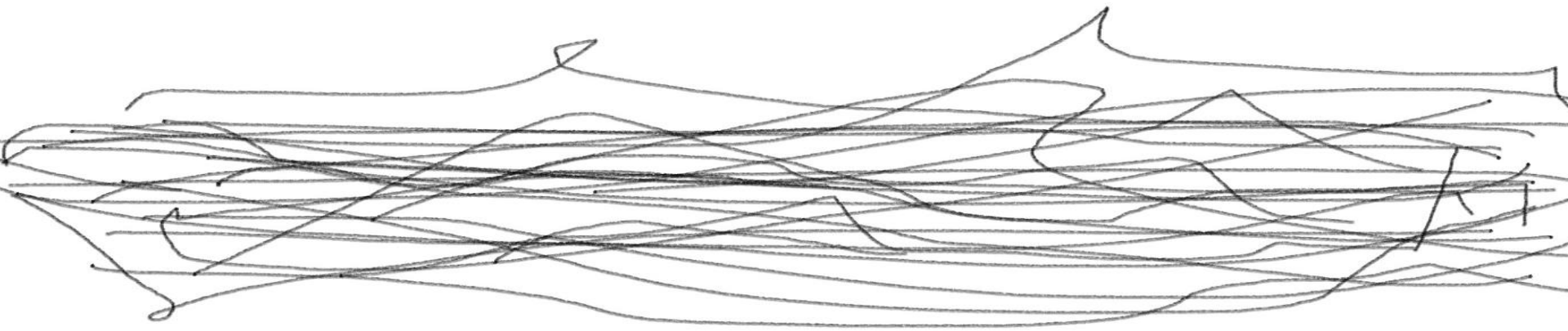
<http://www.khanacademy.org/science/biology/human-biology/v/neuronal-synapses--chemical>

Brain Plasticity





Building Consistent & Dependable Neural Pathways



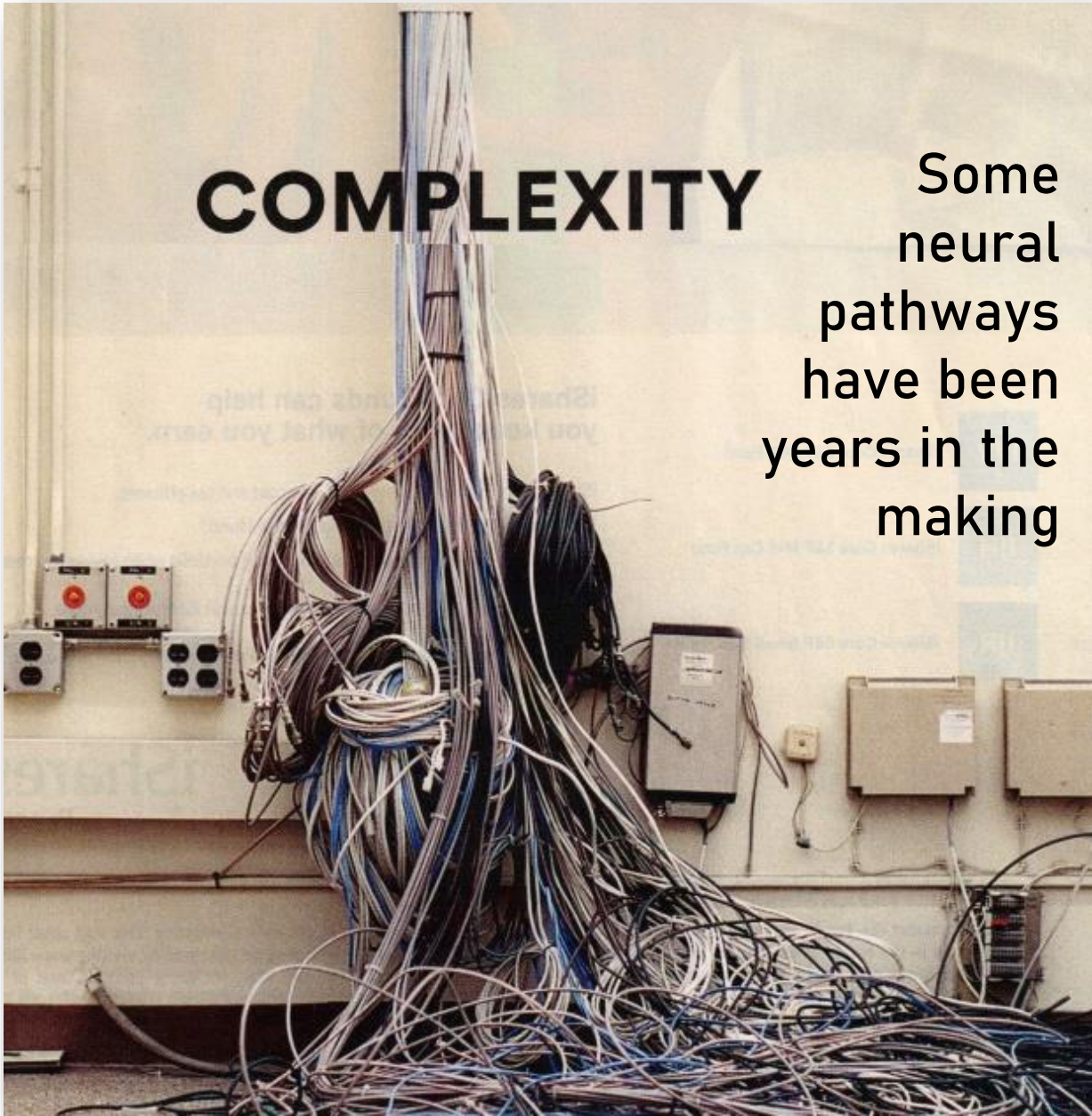
Works in both

1. neurotypical childhood and in

2. inconsistent transmissions in Learning Differences (behaviors, learning, choices).

COMPLEXITY

Some
neural
pathways
have been
years in the
making



The Problem

(Developmental Delay,
Learning Differences)

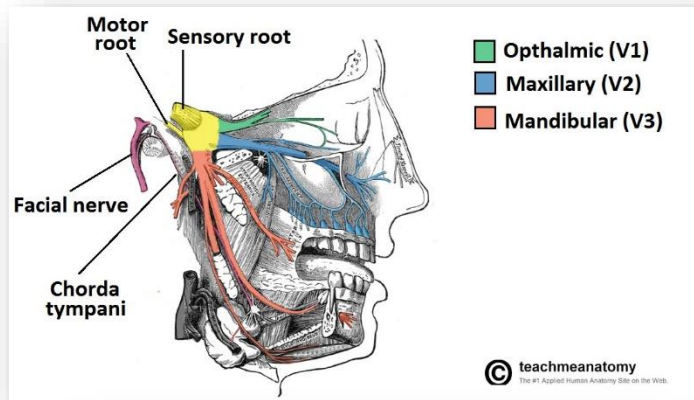
So, how does all the
learning fit together?



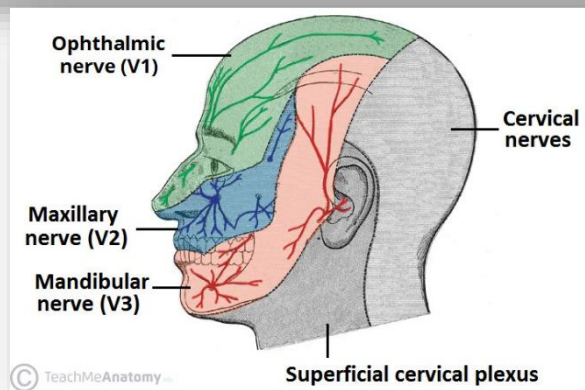
Sensory Integration



(9 portals to the brain)



[Link](#)



[Wikipedia: Trigeminal Nerve](#)



Auditory
Transduction
YouTube video
<http://www.youtube.com/watch?v=PeTriGTENoc>

Text from Wikipedia:
http://en.wikipedia.org/wiki/Neuronal_encoding_of_sound#Transduction

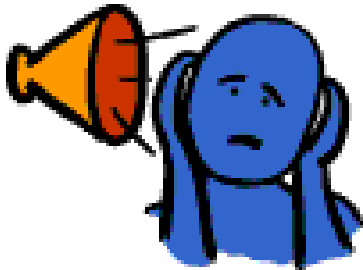
How Do They Process Their Data? (1)



This Photo by
Unknown Author
is licensed under
[CC BY-SA-NC](https://creativecommons.org/licenses/by-sa/4.0/)



- Crossing mid-line (off-center Chinese finger puzzle)
- Lights (flickering, humming)
- Touch/Tactile (1 glove)
- Sounds (1 ear plug, ambient noise higher)
- Vision out of whack (trade glasses with someone)
 - *Ick Factor (don't like someone else's glasses?)*



(1) In collaboration with Alma Liotta, OT.R., and Rosemary Slade, O.T.R. Thank you so much for your ideas!

What Do They See?

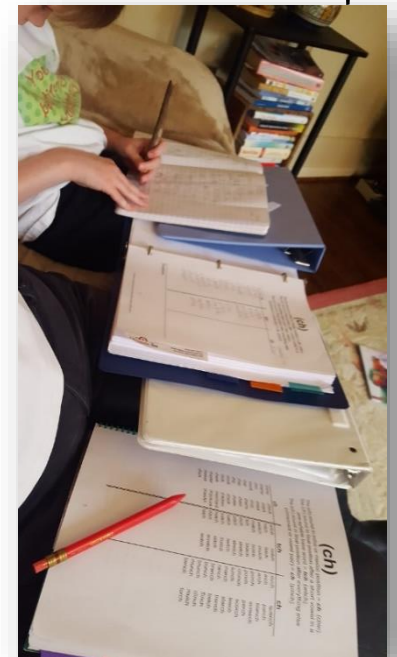
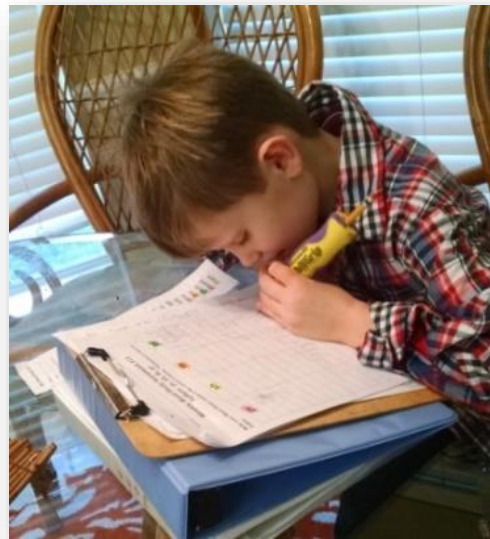
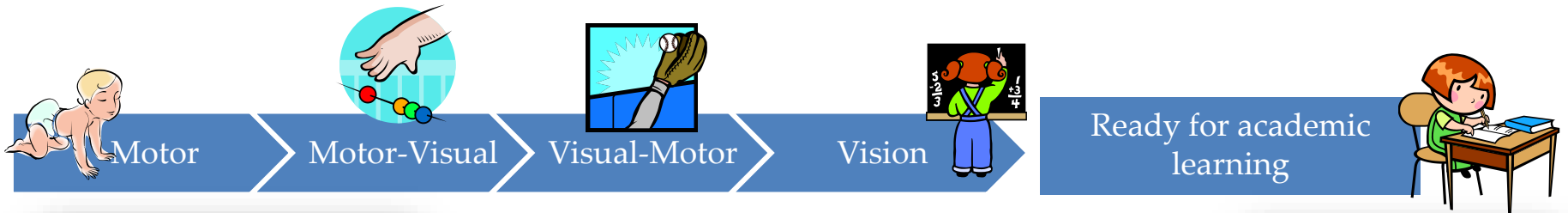


Four children in every classroom see print this way. They can't control their eye movements at close distances, making reading and attention almost impossible. As the print blurs and moves, they stumble over words, lose their place, and can't comprehend. Out of desperation, they give up and quit. Is it any wonder they struggle in school?

It All Fits Together

If you are lucky

Today's learning is better than maybe tomorrow's



Motor Function

Am I moving yet?

No Movement,
No Moving
Forward.



Gross
Motor

Fine
Motor

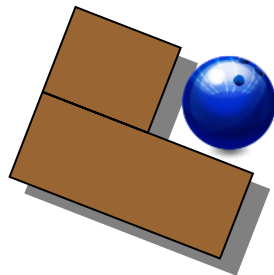
Oral
Motor



Clipart from PowerPoint library

Motor Function Stalled

Am I moving yet?



"Earn it"



Midline Crossover, Movement & Primitive Reflexes



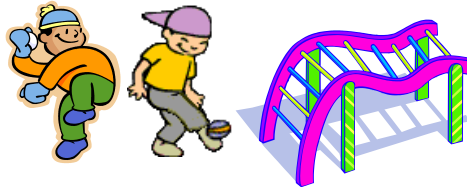
(You are born with some motor functions (movements) that automatically happen, and then they integrate into something bigger)

If you are lucky.

If not, they are “retained”.



Movement Builds Learning



[Texas Study on value of triple recess time](#)

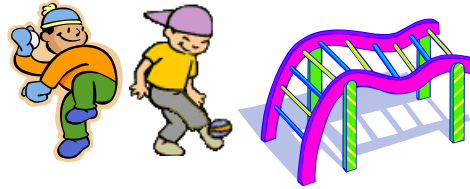
Mid-Line Crossover

- Gross motor, fine motor, left-right movements.
- Needed for reading, math, eye tracking, and further reflex integration

Some (but not all) Primitive Reflexes (3) (instinctive, in brain stem)

1. Asymmetric Tonic Neck Reflex (Arm & leg extend toward stimulation; bent on the other side. Right ear usually up due to language/speech in the left brain. Left ear catches ambient sounds; right ear focuses on “close communication. Necessary for eyes to cross midline and for eye sight to extend past arms length)
2. Tonic Labyrinthine Reflex (head stretching forward & down, and backward & down. Develops ears & eyes; “vestibulo-ocular” reflex that affects balance & vision. Rather like an early Superman)
3. Symmetrical Tonic Neck Reflex (Head, neck and limb movements for rocking on floor with hands and knees and then crawling on hands and knees). It also helps the baby crawl in a cross lateral manner. This reflex supports the development of midline body posture and gross motor development. It also helps to develop precise motor coordination as well as intentional movement. It is also profoundly connected to vision- binocular vision, adaptation of near to far vision. Scooting doesn’t count because there is not cross lateral movement in prone.) **The body needs a foundation to integrate STNR: First, ATNR, then TLR then STNR.**
4. Landau Reflex (3-D vision, which eventually becomes the Tendon Guard reflex; starts before 2 and goes until 8 or 9 y/o. The world “standing up”. Needs jumping, rocking, skipping, hopping, swinging, twirling, rolling and all things “physical play” to fully integrate)

Primitive Reflexes



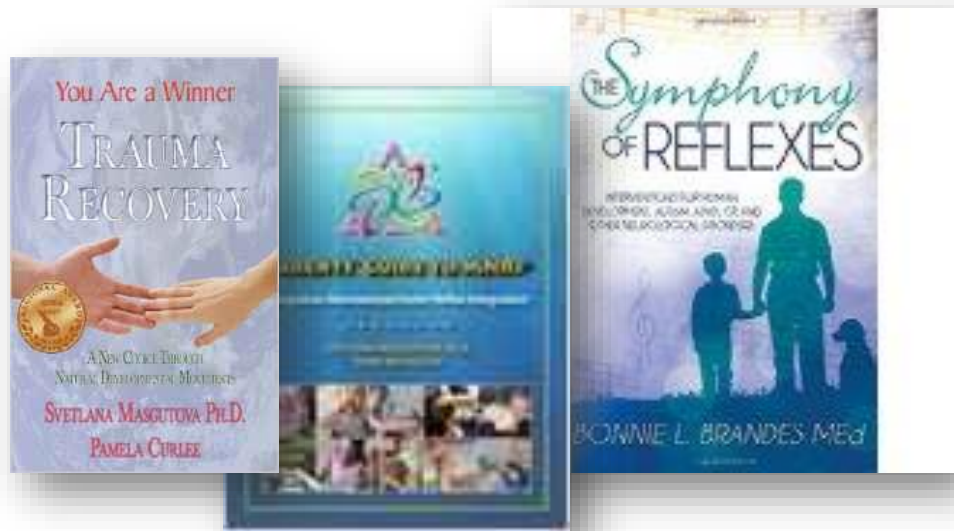
Again, we are born with primitive (automatic) reflexes, which then mature into higher-level reflexes **integrated** into the central nervous system.

Primitive Reflexes

- [Video on Primitive Reflexes, Movement & Sensory Integration](#)

<http://www.autismone.org/content/affecting-sensory-processing-and-primitive-reflexes-chiropractic-and-cranial-sacral-therapy-0>

We use Quantum Reflex Integration (QRI - cold lasers)



Affecting Sensory Processing and Primitive Reflexes with Chiropractic and Cranial Sacral Therapy



Posted by AutismOne On September 1, 2012, 5:09 am
AO/GR 2012 Conference. Charles W. Chapple, DC, FICPA.

- [Brain Gym](#)®

<http://www.made2movetherapy4kids.com/about-us.html>

- [Primitive Reflexes \(Wikipedia\)](#)

http://en.wikipedia.org/wiki/Primitive_reflexes

But If They Don't Integrate, What Can You Do?

One Gigantic Freeway System (going as fast as 250 m.p.h.) (1)



(1) Roadway: http://static1.abduzeedo.com/files/posts/best_week/freeway_lost.jpg

Movement-Based Interventions (Educational/Sensory Integration)



Interactive Metronome[®]
Fast ForWord[®]
Astronaut Training[®]

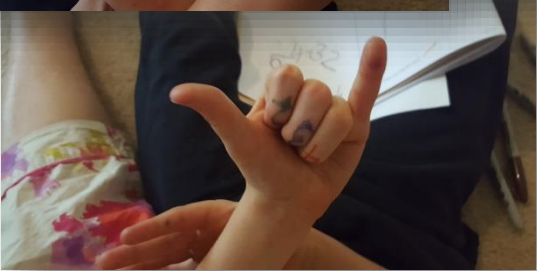
(synchronization,
reflex integration,
3D learning)

To Help With:
Executive Function
Working Memory
Dyslexia
Dysgraphia
Dyscalculia



Region 4 DLC 2022
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Reserved, G. Yess
Fisher & Co., LLC

Crossing Mid-Line For Fun



Or Not



Integration, fear, curiosity



Midline crossover, motor planning, executive function, core strength, muscle memory



Ballast to Movement:

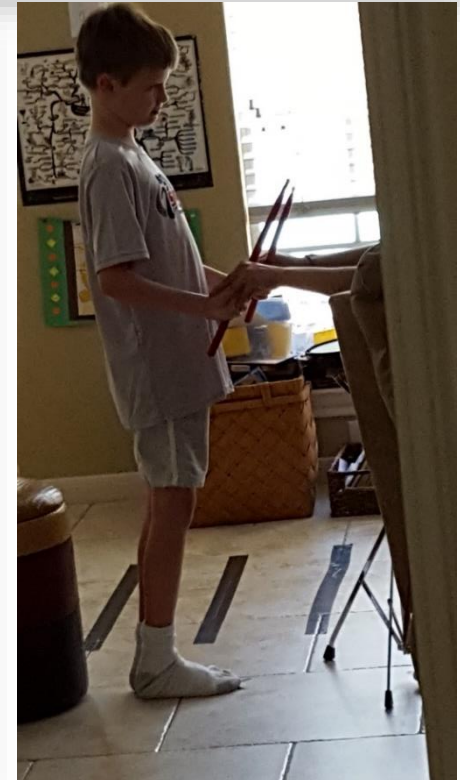
“Don’t Move”

Self-Control, Self-Regulation



Self-control,
self-regulation,

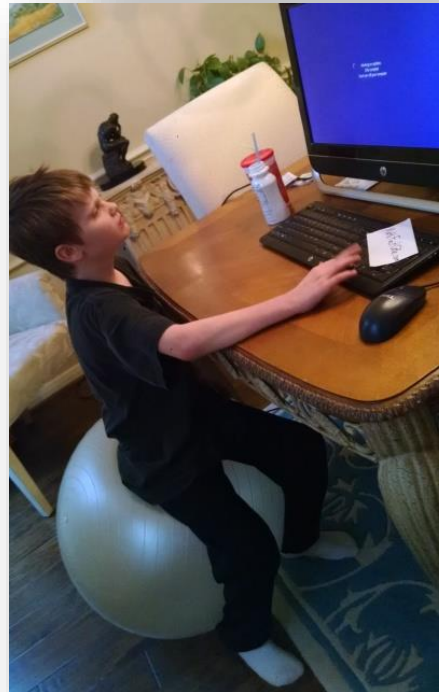
SEL,
motor planning





Our
house.

Your
class
room.





All purposeful
movement
interventions



At peace in their own skin

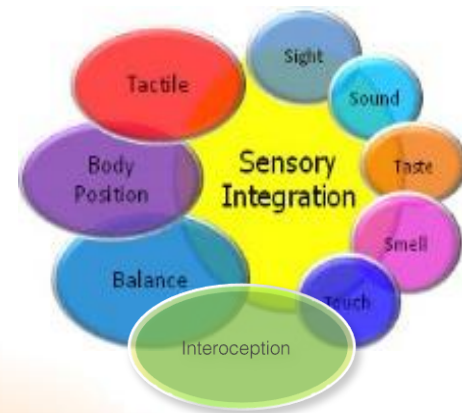
Hearing, Listening, Ears & Auditory Transduction



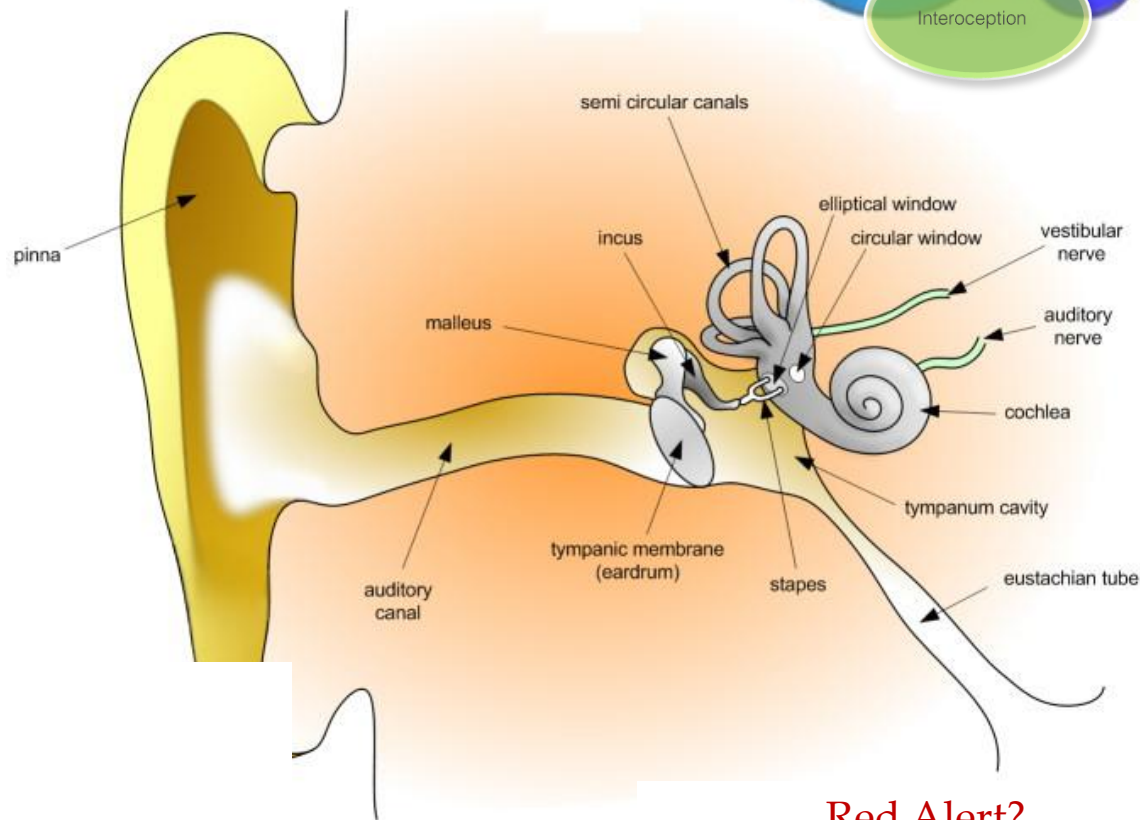
[Auditory Brainstem Response \(ABR\) Test](http://www.hearingcenter.com/httpdocs/services/abr.html)

http://www.hearingcenter.com/httpdocs/services/abr.html

Hearing & Processing



Difference between Hearing & Listening = Paying Attention or "Attending"



[Therapeutic Listening YouTube video](#)

[Second YouTube video](#)

[Auditory Hypersensitivity](#)

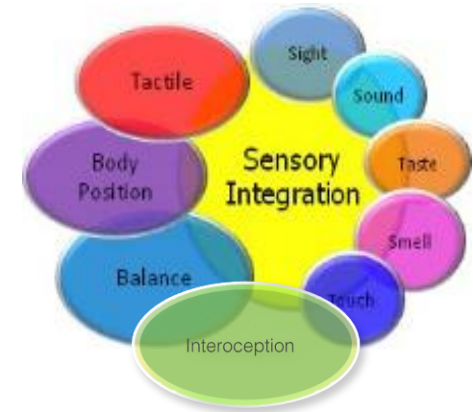
Red Alert?

"Am I safe in my environment?"

(24/7; the brain never shuts off), 31db or more interferes with sleep. Get the app to measure bedroom db level.

Auditory Transduction (again)

How ears are supposed to work



Auditory Transduction YouTube video

<http://www.youtube.com/watch?v=PeTriGTENoc>



Text from Wikipedia:

http://en.wikipedia.org/wiki/Neuronal_encoding_of_sound#Transduction

- <http://www.aitinstitute.org/>
- <http://aithelps.com/>
- http://raisingchildren.net.au/articles/auditory_integration_training_th.html
and many more if you search

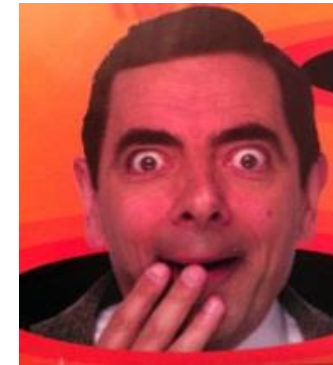


Language vs. Communication



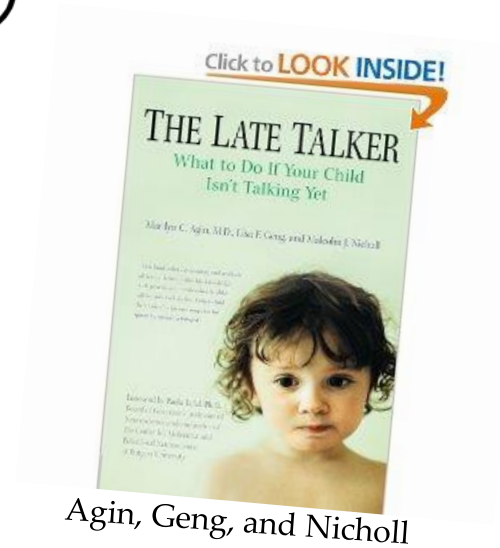
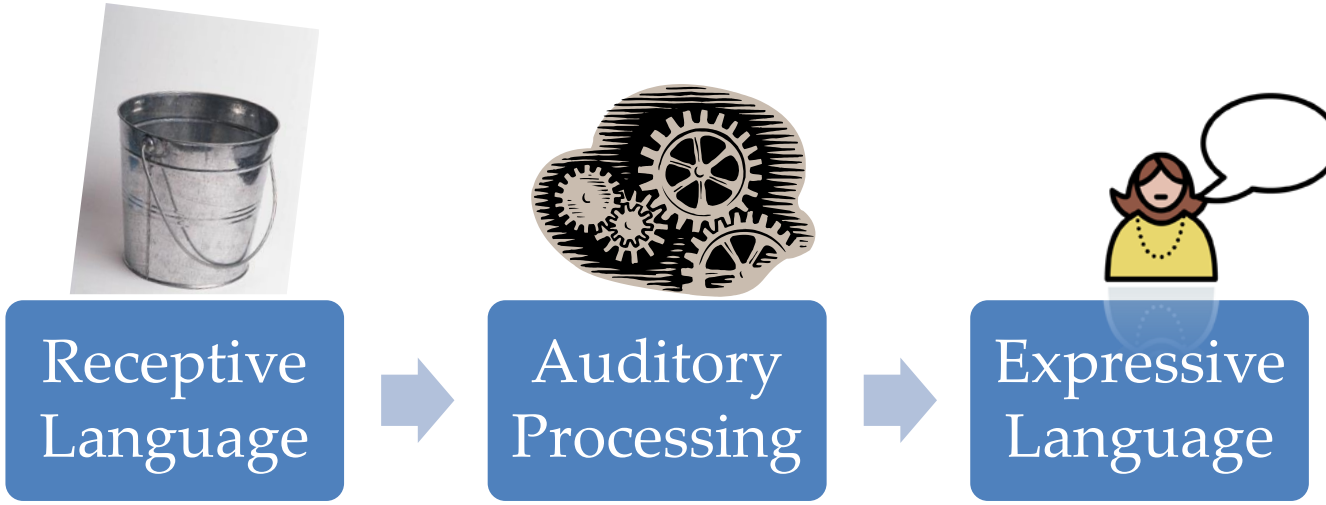
The intent to communicate is key.

Communication can be
non-verbal,
body language,
emotions audibly expressed,
facial expressions,
laughter,
grunts,
Picture Exchange (PECS),
signing,
and much more.



Ever hear Mr. Bean actually talk?

Language



Learning is also driven by motor function:



Music



<http://www.signingtime.com/>



<http://www.babybumblebee.com/company/about.cfm>

"I re-learned everything through music"



DannyVaughan.com



Spectrum Connections

<http://spectrumconnections.com/index.php>

Sing everything, everywhere



Music's Effect on the Brain

Music on the mind

When we listen to music, it's processed in many different areas of our brain. The extent of the brain's involvement was scarcely imagined until the early nineties, when functional brain imaging became possible. The major computational centres include:

CORPUS CALLOSUM ➤
Connects left and right hemispheres.

MOTOR CORTEX ➤
Movement, foot tapping, dancing, and playing an instrument.

PREFRONTAL CORTEX ➤
Creation of expectations, violation and satisfaction of expectations.

NUCLEUS ACCUMBENS ➤
Emotional reactions to music.

AMYGDALA ➤
Emotional reactions to music.

C SENSORY CORTEX
Tactile feedback from playing an instrument and dancing.

C AUDITORY CORTEX
The first stages of listening to sounds. The perception and analysis of tones.

C HIPPOCAMPUS
Memory for music, musical experiences and contexts.

C VISUAL CORTEX
Reading music, looking at a performer's or one's own movements.

C CEREBELLUM
Movement such as foot tapping, dancing, and playing an instrument. Also involved in emotional reactions to music.

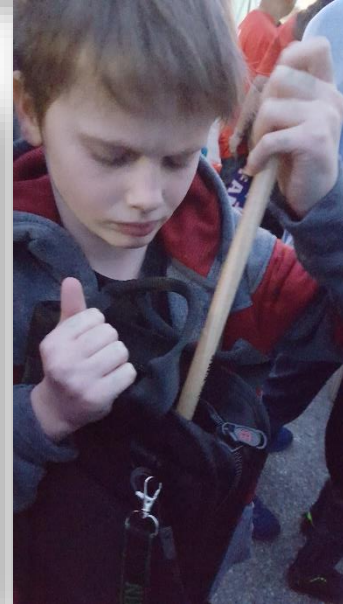
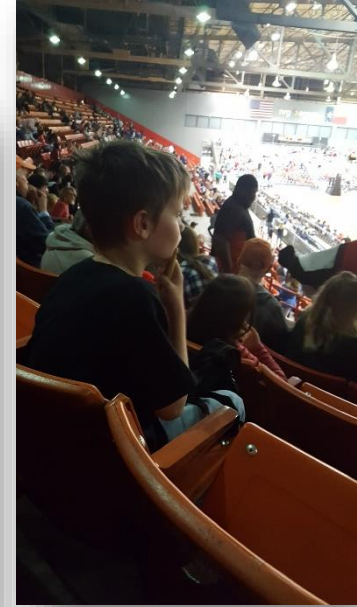
MIKE FAILLE/THE GLOBE AND MAIL ■ SOURCE: THIS IS YOUR BRAIN ON MUSIC: THE SCIENCE OF A HUMAN OBSESSION

● <http://daniellevitin.com/publicpage/books/this-is-your-brain-on-music/> ●

Music Influence on Academics & SEL



Also see blog posts



What skills are we helping them build?

What are the foundation best practices we are providing?



Moving into Music, Education, Research and The Brain

- <https://www.psychologytoday.com/us/blog/the-athletes-way/201906/music-participation-is-linked-teens-academic-achievement?fbclid=IwAR24zb7FhGt4dG9xGwp8wH5d00Fi31xKlxcGMqUXJ6dbXsBQk6eqMQzC1EM>
- https://didgeproject.com/therapeutics/doctors-now-prescribing-music-for-heart-ailments-brain-dysfunction-learning-disabilities-depression-ptsd-alzheimers-and-more/?fbclid=IwAR1hJsxOGyS0rTQeQhLsiNoiX6rNrrY_MOJ8u2iWc9R4cFVqGwoRA41Wvbs
- https://thebestbrainpossible.com/dance-exercise-brain-mental-health/?utm_campaign=shareaholic&utm_medium=facebook&utm_source=socialnetwork&fbclid=IwAR3nt7wBiJ4iYgbufe7T-WGEZVFCINBTrZLjKqLxZTeyXwIEhHaFaTgXZ1A
- <https://www.mic.com/articles/110628/13-scientific-studies-prove-music-lessons-were-the-best-thing-your-parents-did-for-you?fbclid=IwAR2v-8ULk1bV7pLrZXrKIYFcDkz1RVR824vXo9Aj1noR5VCSpTDnJ6mUGqU>
- <https://www.psypost.org/2019/02/listening-to-the-music-you-love-will-make-your-brain-release-more-dopamine-study-finds-53059?fbclid=IwAR2dcQAdrKuxlPaLWPrh0vKDW5ABhJKptlAb26GjGVX-759J3ZOSQ6a2ocg>
- <https://musiceducationworks.wordpress.com/2016/06/19/a-childs-brain-develops-faster-with-exposure-to-music/?fbclid=IwAR1yJrkBnbVeARh0iLVrNTLs3ZSd8nOdg-esgq4XjNeEAb9PklOw4DAAasI>
- <https://nationswell.com/young-people-musical-theater-trauma/>
- https://bigthink.com/news/ever-get-the-tingles-from-listening-to-good-music-that-part-of-your-brain-will-never-get-lost-to-alzheimers?utm_medium=Social&facebook=1&utm_source=Facebook&fbclid=IwAR2vBro9LigSjorqOlGaOt_OwMuOlPhq_RLogc7WvL7XpjDfZXlmeHxChI#Echobox=1563388051
- https://musiceducationworks.wordpress.com/2018/03/28/music-lessons-improve-childrens-cognitive-skills-and-academic-performance/?fbclid=IwAR1IzandGATcspPqxJKBFohtsFp9r_xJGJmtjWdA9CafsYI7bBe3Zrf2QQw
- https://www.inc.com/john-rampton/the-benefits-of-playing-music-help-your-brain-more.html?fbclid=IwAR3HIA6YQXDU6adGKGI-SnhT633Z1677YpjCSUVxOGq8onOrh104_TketJI
- https://upliftconnect.com/neuroscience-of-singing/?fbclid=IwAR1P_v5ZDOft9eUKZnqo13ePxLUpinP5oq7Jeq5F8WuaUCAguPwcpTHJUfc





Eyes & Vision Learning

“80-90% of all info absorbed by the brain is visual” (1)



(1) Silberman, M., (2006), *Active Training, A Handbook of Techniques, Designs, Case Examples, and Tips, 3rd Edition*, Pfeiffer.

Vision Therapy Assessment




John's List for Tuesday
 Read ³⁵/₃₀ minutes.
 2 Math Tiles
 1 page ~~Touch~~ Math Touch
 Lowes, grocery,
 Walgreens,
 Restaurant
 Play with Saxton,
 Laugh, Be Happy

John List for Tuesday
 Read 35 minutes
 Math Tiles
 Math Touch
 Lowes of oak
 Walgreens
 Restaurant
 Laugh Be Happy

John can earn computer time
 on Wed
 computer time TV
 TV Sports
 Sports Ball
 Drop Box
 good job
 choice
 Mom's phone
 Mrs. Smith
 poor choices
 phaboo
 MommyPhone
 Ballas

Name John Fisher
 Today was my first day of school.

The first thing I did was

get to school

The second thing I did was
play with my dog

The third thing I did was
my sister and I went to the park

- Team
- Jump (Saccades)
- Refocus

Drop Box
 phaboo
 good job choice

John List for Tuesday

NAME: _____
 1. Wee Wee is a bathroom word.
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____

I can write my numbers to 120.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

What John's Vision Therapy Looks Like



<http://visiontherapystories.com/>

<http://visionhelp.wordpress.com/>

<http://pavevision.org/>

<http://visiontherapyathome.com/>

<http://www.pdppro.com/>

<http://visionandlearning.org/>

<http://covd.org/>

<http://optometrists.org/>

<http://oepf.org/>

Executive Function

“managing oneself and one’s resources
involving mental control and self-regulation.”

Building the Words:
**Phonemes,
Graphemes**

Retaining the Words:
Working Memory

Interpreting the Words:
**Retelling the Story
& Building
Vocabulary**

Executive Function Practice, Motor Planning, Risk Taking, and Neuro-typical Peer Modeling



Motivation

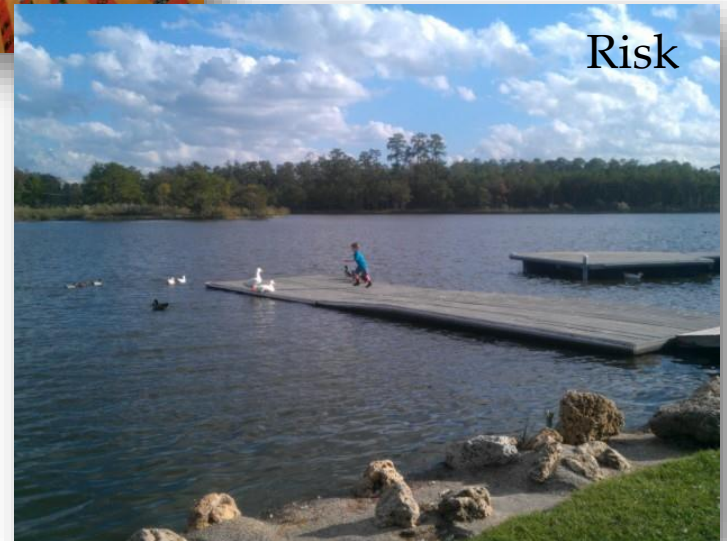
Intrinsic v. Extrinsic



“Because I want it”



Motor planning



Intrinsic Motivation of the Child



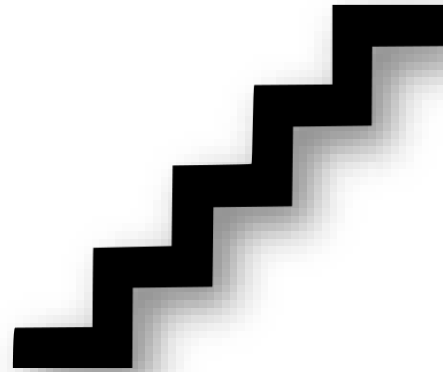
(John is now headed to 9th grade, and we can talk older kid re-directs if you wish)



Instant Gratification or Consistent Decisions?

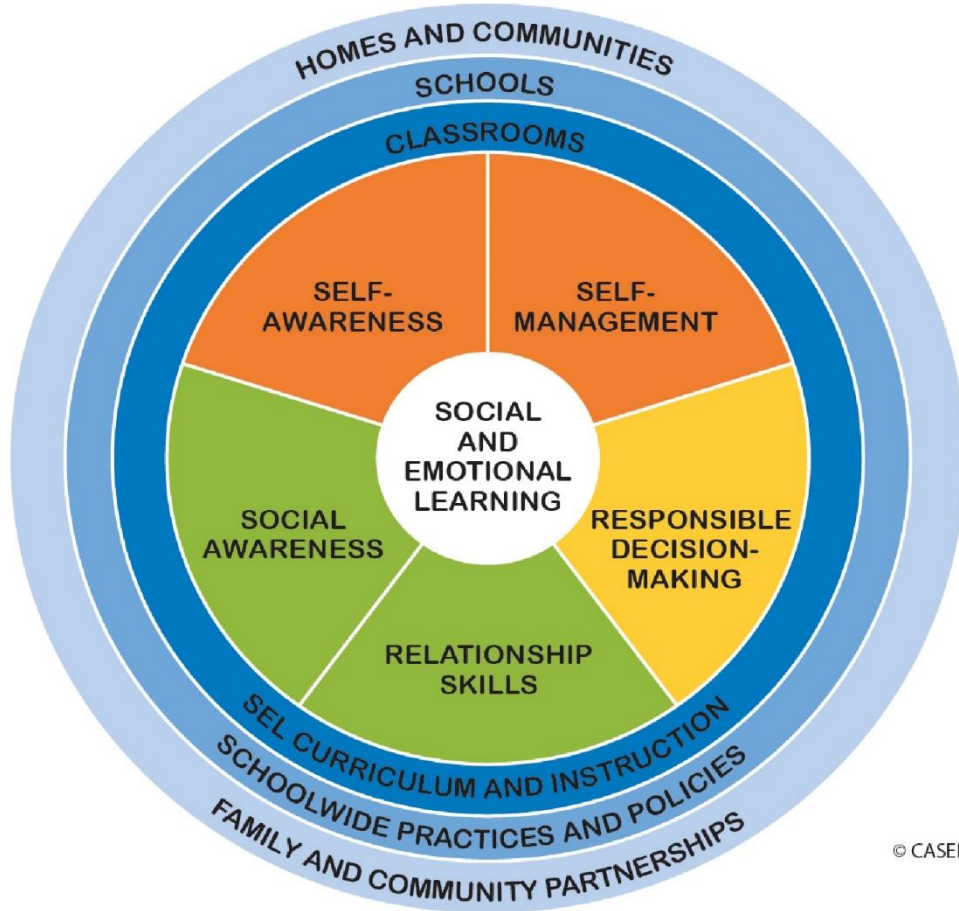


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Are They Intrinsically Motivated by Social Emotional Learning (SEL)?



© CASEL 2017



Social-Sensory-Movement Learning

How could this look in your classroom?



Birthday Parties



Blowing, drinking, taking turns, sharing



Anything messy outside



To share play with other kids



What Research Shares About Relationships

SEARCH SUBSCRIBE LEARN MORE

RESEARCH STORIES

The Science of Resilience

Why some children can thrive despite adversity

BY: Bari Walsh POSTED: March 23, 2015




When confronted with the fallout of childhood trauma, why do some children adapt and overcome, while others bear lifelong scars that flatten their potential? A growing body of evidence points to one common answer: Every child who winds up doing well has had at least one stable and committed relationship with a supportive adult.

RESEARCH STORIES

Public Policy and Resilience

How we can change our policies to help disadvantaged kids cope and thrive

BY: Bari Walsh POSTED: March 23, 2015



Resilience — It's not about grit; it's about relationships.

Here's what the **science of resilience** is telling us, according to the council's report:

“There is a common set of characteristics that predispose children to **positive outcomes in the face of adversity**:

- The availability of at **least one stable, caring, and supportive relationship** between a child and an adult caregiver.
- A **sense of mastery** over life circumstances.
- **Strong executive function & self-regulation skills.**
- The supportive context of affirming faith or cultural traditions.

Learning to cope with manageable threats to our physical and social well-being is critical for the development of resilience.

Some have **greater sensitivity** to (-) and (+) positive **experiences.**

Positive and negative experiences over time continue to **influence a child's mental and physical development.**

Resilience can be built; it's not an innate trait or a resource that can be used up.

“Water the Flowers, Not the Weeds”



“First You Name It, Then You Limit It” (or Put the Boundaries On It)

Behavior

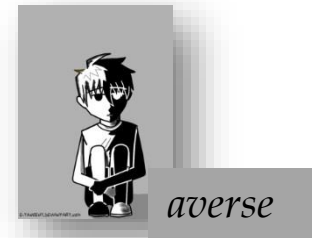
as a Means of Communication

“Look At Me!”



Seeking!

“Don't Look At Me!”



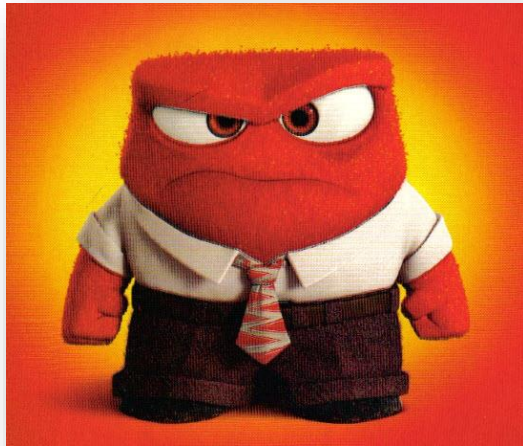
averse

Depending on the motivation, right?

Re-Directs. Positive Behavior (PBIS). Trauma-Informed.

TBRI

FIGHT



FRIGHT



FREEZE
(Hasn't decided yet)



FAWN



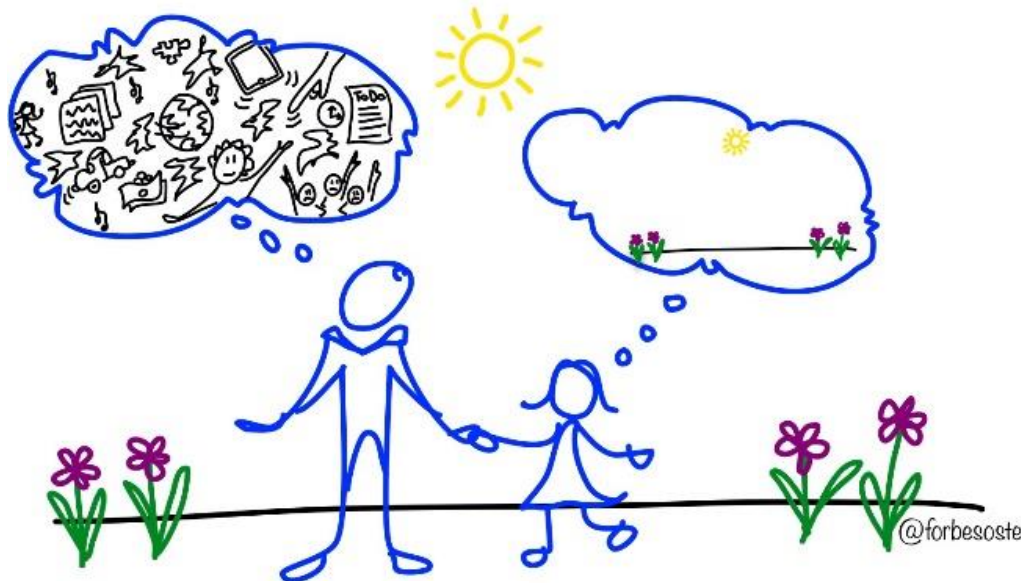
This Photo by Unknown
Author is licensed under [CC BY-NC](#)

FLIGHT



How Does Mindful Fit In?

Mind Full, or Mindful?



[This Photo](#) by Unknown Author is licensed under [CC BY](#)

“Mindfulness means maintaining a moment-by-moment awareness of our thoughts, feelings, bodily sensations, and surrounding environment.

Mindfulness also involves acceptance, meaning that we pay attention to our thoughts and feelings without judging them — without believing, for instance, that there’s a “right” or “wrong” way to think or feel in a given moment. When we practice mindfulness, our thoughts tune into what we’re sensing in the present moment rather than rehashing the past or imagining the future.”

The Vagus Nerve & Neurotransmitters

Psychology Today

Find a Therapist (City or Zip)

Christopher Bergland
The Athlete's Way

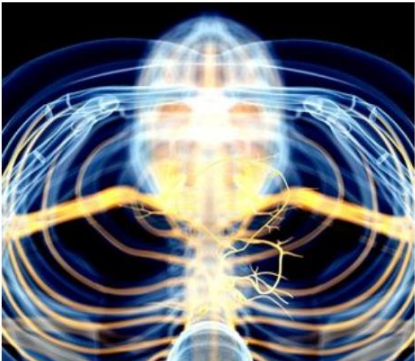
[Link](#)

Vagus Nerve Stimulation Dramatically Reduces Inflammation

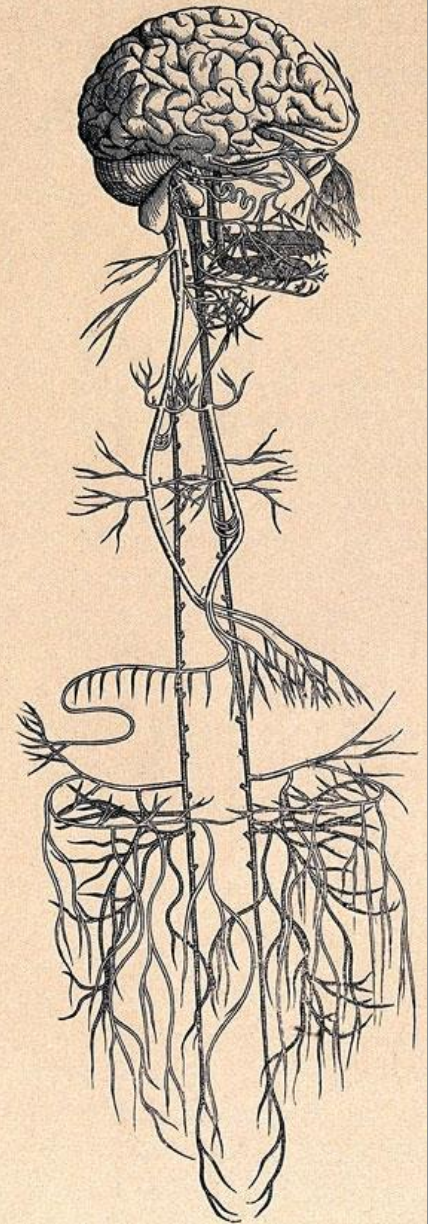
Stimulating the vagus nerve reduces inflammation and the symptoms of arthritis.

Posted Jul 06, 2016

f t e



“In 1921, a German physiologist named Otto Loewi discovered that stimulating the vagus nerve caused a reduction in heart rate by triggering the release of a substance he coined *Vagusstoff* (German for “Vagus Substance”). The “vagus substance” was later identified as acetylcholine and became the first **neurotransmitter ever identified by scientists.”**



Stress produces inflammation

Your Vagus Nerve (1)

“Starts in the brain and runs, via numerous branches, to several thoracic and abdominal organs including the heart.

Among its jobs is to send signals telling that organ to slow down during **moments of calm and safety** (1)”

But what if there is no sense of calm or safety?



(1) Photo & Reference: The Economist, 12/8/2012, Science & Technology, p. 80
<http://www.economist.com/news/science-and-technology/21567876-you-can-it-helps-think-well-yourself-first-place-think-yourself>

Psychology Today AU

Find Counselling (City or Postcode)

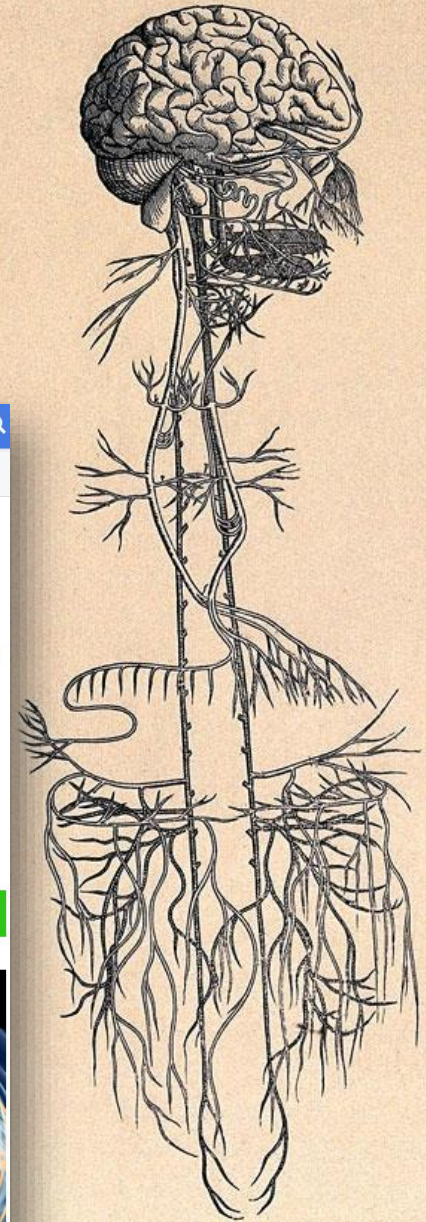
Christopher Bergland
The Athlete's Way [Link](#)

Longer Exhalations Are an Easy Way to Hack Your Vagus Nerve

Respiratory vagus nerve stimulation (rVNS) counteracts fight-or-flight stress.

Posted May 09, 2019

f t e



Blow In, Blow Out

Motor planning, oral defensiveness, modeling, breath control, visualization, abstract learning, cause & effect



I use this shamelessly

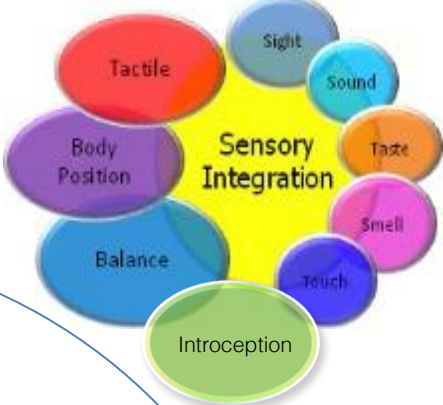
to reinforce good choices
for social learning
for peer modeling





Social Emotional Learning

Movement-Based (Learning), Well-Running Machine



Self-Directed Academic Learning

Intrinsic Motivation



Positive Behavioral Re-Direction & Self-Regulation





- Visual integration (saccadic movement)
- Sensory seeking (not averse)
- Dysgraphia/dyslexia, word building
- Motor planning
- Self-directed movement-based activities





Looks like a normal kid doing normal things.....

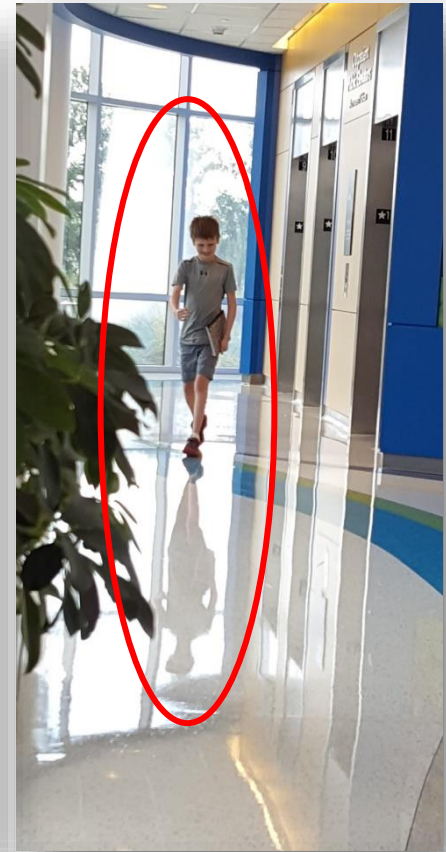
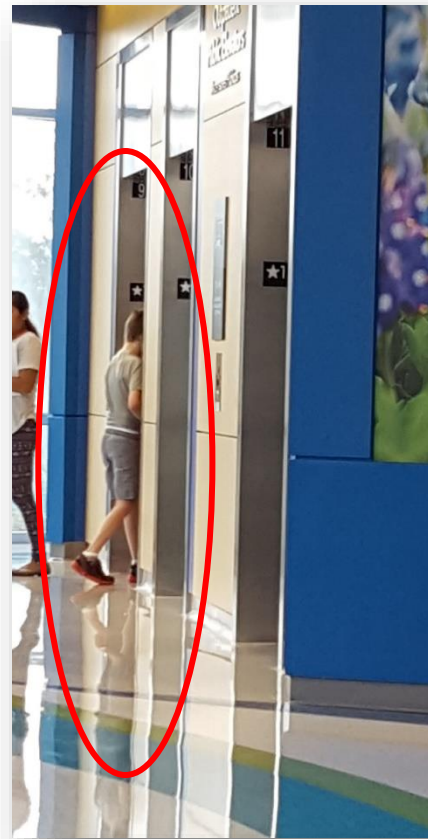


Could be your classroom helper(s)





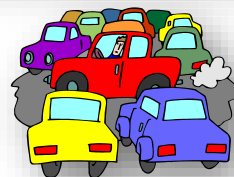
Motivation,
executive function,
self-regulation,
resilience,
self-esteem,
mental health,
self-reliance



Sensory integration,
executive function,
SEL,
motor planning,
auditory processing



Planning for the future



"You Be the Leader"





SEL,
inclusion,
acceptance,
self esteem



Region 4 DLC 2022 |
All Rights Reserved, G.
Yess Fisher & Co., LLC

How could these skills look in your classroom?



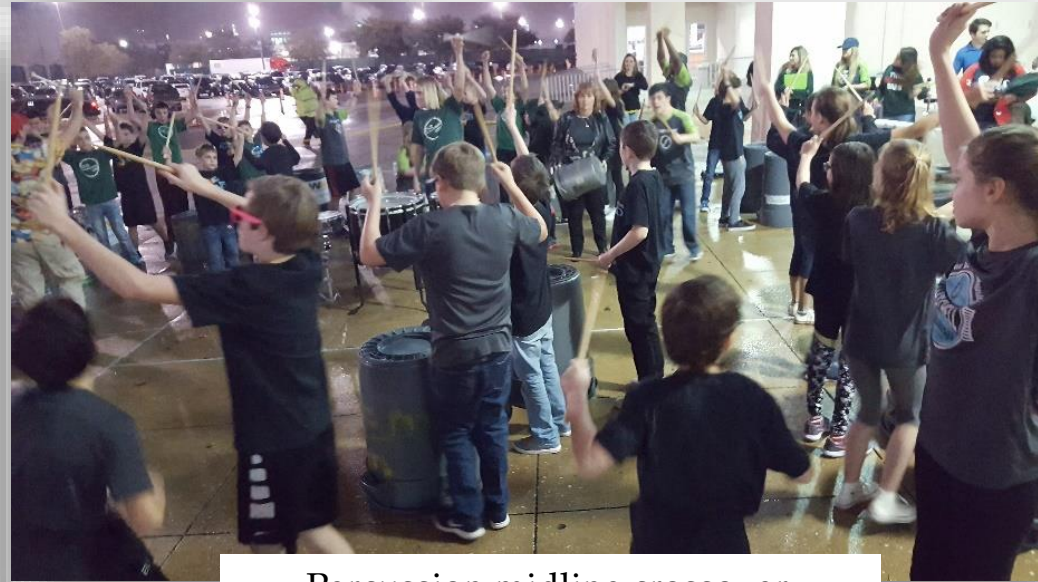
Navigation skills



On, off, during, before, after



Building collaborative skills for their futures



Percussion midline crossover, performance, SEL, sensory overload, executive function, instrument care



What are the academic SEL motivators?



Active learning.
Building self-awareness.



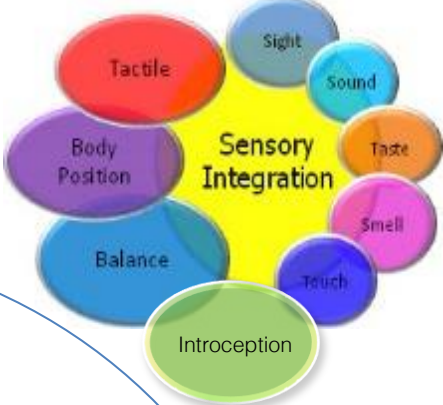
This brings us back to our
beginning model of how a child
actively learns,

how all these factors fit together



Social Emotional Learning

Movement-Based (Learning), Well-Running Machine

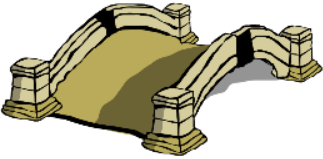


Self-Directed Academic Learning

Intrinsic Motivation



Positive Behavioral Re-Direction & Self-Regulation



Methylation & Implications for Learning



So, in closing:

Positive Consequences

Positive Consequences to the Child

- Anxiety v. Confidence
- Shame v. Pride
- Guilt v. Initiative
- Fear v. Joy
- Hiding v. Risk Taking
- Social Isolation v. Belonging
- Object of Mockery v. Respected
- Anger v. Self-Control
- Physical Loss v. Resilience
- Self Harming v. Poised
- Hard Way v. Easy Way
- Individual Reaction to Disapproval v. Self Esteem
- Natural *
- Unintended *

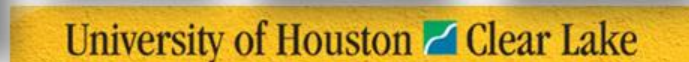
* My favorites !



Train the Trainer Collaborations [link](#)



NEW CANEY ISD
A SHINING STAR IN TEXAS EDUCATION



HELP · HOPE · ANSWERS
Improving the lives of children and adults with disabilities



Fitting Interventions for Learning Differences Into Your Busy Life

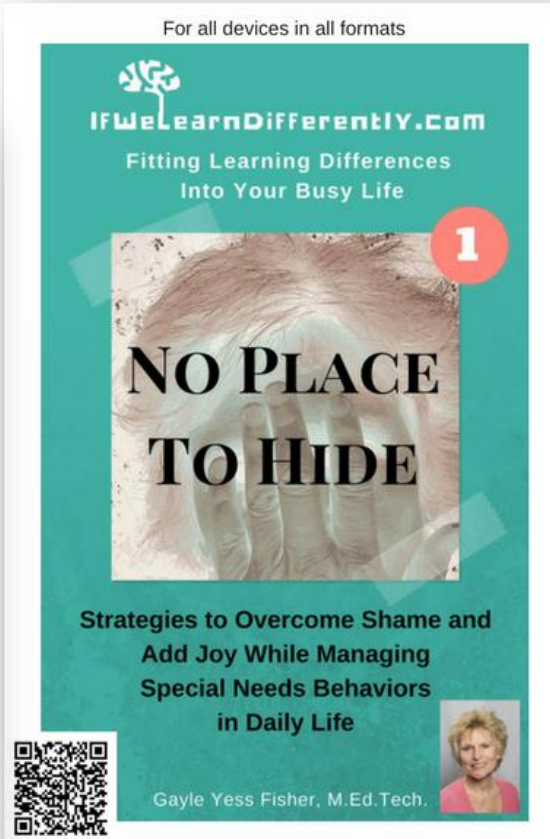
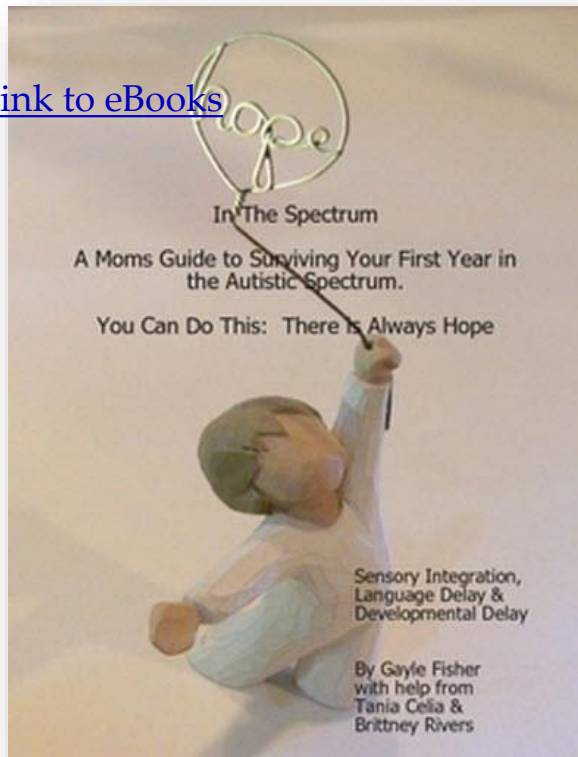
Reduce Shame & Fear. Increase Joy.



Also an eBook series.
So you always have new ideas
close by.



[Link to eBooks](#)



Appendix: Over 10 single-spaced,
full-sized pages of John's medical
history



GETTING SORTED.COM

501 (c) (3) EIN: 46-3532301

Working together to raise the community's awareness and to provide families, caregivers, and professionals the tools necessary to enlighten, engage and educate children of learning differences.

Providing typical siblings customized social meet-ups and educational scholarships to enable them to have normal life experiences outside the challenges of the immediate family circle.



Special Needs Sibs



Our Training Center



Collaborations



If We Learn Differently



Workshops



First Responder Support



Aprendemos Diferente

GETTING SORTED



[HOME](#) [ABOUT](#) [APRENDEMOS DIFERENTE](#) [IF WE LEARN DIFFERENTLY](#) [OUR TRAINING CENTER](#) [PODCASTS](#) [SIBLINGS](#) [WORKSHOPS](#) [COLLABORATIONS](#) [EVENTS](#)



Simplify

May 18, 2020

▶ **Simplify**
Gayle Y. Fisher Download

So, It Is Magic? No, It Is Neurology.

2020

- Neural Pathways
- Sensory Integration
- Self-Directed Learning and Intrinsic Motivation
- Phonetic Awareness & Executive

If you want to be on the listserv (or get notes of this workshop), please get out your phones and register at:

<https://rebrand.ly/Notes>

GETTING SORTED



**IMPROVING AND CONNECTING THE
WORLD OF LEARNING DIFFERENCES**

**IF LEARNING DIFFERENCES
ARE THE CHALLENGE,
WHICH TOOLS WOULD
HELP YOUR FAMILY?**

COME JOIN OUR TEAMS!

Gayle Y. Fisher, M.Ed., Ed. Tech.
Gayle.Fisher@usa.net
@GayleFisher
713.594.9750
GettingSorted.com



Allergies and Inflammation

Dr. Stephen Miles, All-Seasons Allergy

Primary Immune Medical Advisory Committee

<http://primaryimmune.org/about/idf-medical-advisory-committee>



Immunoglobulins: Sensitivities (IgG) c/w Nearly-fatal (IgE);

We personally had an auto-immune over-reaction to fire ant venom

YouTube video on High School Biology lecture

http://www.youtube.com/watch?v=-FrGw_C90eA&feature=related

Special thanks to Dr. Stephen Miles and Dr. Ron Grabowski (Spectracell) for their help in solving some of our mysteries

<http://en.wikipedia.org/wiki/Allergy>

<http://www.webmd.com/cold-and-flu/immune-system>

What is Methylation?

- “the installation of a methyl group” (methyl-folate)
- “the gas for our car”
- A cellular status that is ready to heal or recover. (1)

[Link to Wikipedia](https://en.wikipedia.org/wiki/Methylation) <https://en.wikipedia.org/wiki/Methylation>

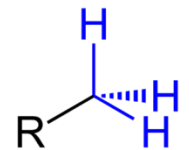
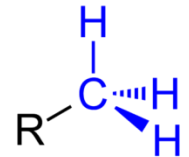
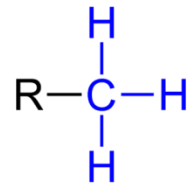
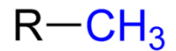
[Link to KhanAcademy.org](https://www.khanacademy.org/test-prep/mcat/biomolecules/dna/v/protein-modifications) <https://www.khanacademy.org/test-prep/mcat/biomolecules/dna/v/protein-modifications>

[Link to another episode in KhanAcademy.org](https://www.khanacademy.org/test-prep/mcat/behavior/behavior-and-genetics/v/regulatory-genes) <https://www.khanacademy.org/test-prep/mcat/behavior/behavior-and-genetics/v/regulatory-genes>

[Link to](http://genesdev.cshlp.org/content/16/1/6.long) <http://genesdev.cshlp.org/content/16/1/6.long>

[Link to Dr. L. Wilson article on methylation:](http://drlwilson.com/Articles/METHYLATION.htm)
<http://drlwilson.com/Articles/METHYLATION.htm>

(1) [Link](http://coffeewithdrstewart.podbean.com/e/methylation-mutations-treatment-intermediate-level-webinar/) <http://coffeewithdrstewart.podbean.com/e/methylation-mutations-treatment-intermediate-level-webinar/>





Healing the Immune System



Dr. Kendal Stewart, NeuroSensory Centers Podcasts

http://www.coffeewithdrstewart.podbean.com/?utm_source=Episode+13+Coffee+w%2F+Dr.+Stewart+Announcement+2014&utm_campaign=www.coffeewithdrstewart.com&utm_medium=email

Neurotransmitters <http://www.autismone.org/content/episode-9-neurotransmitters>

Viruses <http://www.autismone.org/content/episode-8-viruses>

All Pathogens <http://www.autismone.org/content/episode-3-pathogens-viruses-bacteria-and-yeast>

More: <http://www.autismone.org/content/kendal-stewart-md-lisa-hunter-ryden-parent-and-physician-partnership-healing-our-children>

I owe this doctor so much for his help to my family



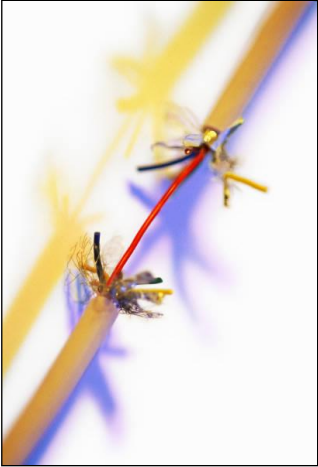
Understanding Our Immune Systems

Salmon Khan, [KhanAcademy.org](https://www.khanacademy.org)

- Viruses <http://khanexercises.appspot.com/video?v=0h5Jd7sgQWY>
- Bacteria <http://khanexercises.appspot.com/video?v=TDoGrbpJJ14>
- Immune System http://khanexercises.appspot.com/video?v=O1N2rENXq_Y
- Immune System <http://khanexercises.appspot.com/video?v=rp7T4IItbtM>
- Helper T Cells <http://khanexercises.appspot.com/video?v=uwMYpTYsNZM>
- B Cells <http://khanexercises.appspot.com/video?v=Z36dUduOk1Y>
- Cytotoxic T Cells <http://khanexercises.appspot.com/video?v=oqI4skjr6lQ>
- Review <http://khanexercises.appspot.com/video?v=xaz5ftvZCyI>
- Inflammation <http://khanexercises.appspot.com/video?v=FXSuEIMrPQk>
- Anatomy of a Neuron <http://www.khanacademy.org/science/biology/human-biology/v/anatomy-of-a-neuron>
- Neural Synapses <http://www.khanacademy.org/science/biology/human-biology/v/neuronal-synapses--chemical>
- More: <http://www.KhanAcademy.org>



More Than You Wanted to Know About Myelination



(Wikipedia) “The main purpose of a myelin layer (or sheath) is to increase the speed at which [impulses](#) propagate along the myelinated fiber. [Schwann cells](#) supply the myelin for the [peripheral nervous system](#).”

Myelin was discovered in 1854 by [Rudolf Virchow](#).^[1] Myelinated axons are white in appearance, hence the "white matter" of the brain.

Myelin helps to insulate the axons. When a peripheral fiber is severed, the myelin sheath provides a track along which regrowth can occur. However, the myelin layer does not ensure a perfect regeneration of the nerve fiber. Some regenerated nerve fibers do not find the correct muscle fibers, and some damaged motor neurons of the [peripheral nervous system](#) die without regrowth. Damage to the myelin sheath and nerve fiber is often associated with increased functional insufficiency.

[Link to Wikipedia](#)




Mitochondria

Mitochondria

“Mitochondria have been described as "the powerhouse of the cell" because they generate most of the cell's supply of ...chemical energy.^[4]”

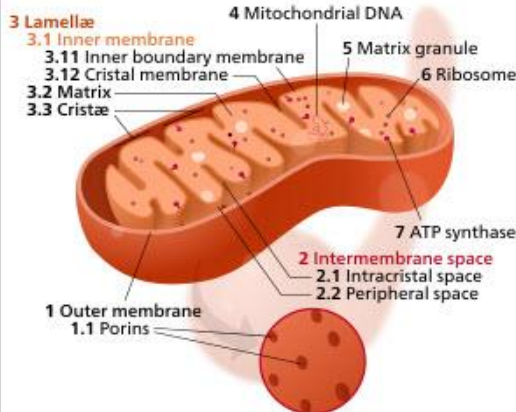
[Link to Wikipedia](#)

Cell biology



Components of a typical animal cell:

1. Nucleolus
2. Nucleus
3. Ribosome (little dots)
4. Vesicle
5. Rough endoplasmic reticulum
6. Golgi apparatus (or "Golgi body")
7. Cytoskeleton
8. Smooth endoplasmic reticulum
9. Mitochondrion
10. Vacuole
11. Cytosol (fluid that contains organelles)
12. Lysosome
13. Centrosome
14. Cell membrane



3 Lamellae
3.1 Inner membrane
3.11 Inner boundary membrane
3.12 Cristal membrane
3.2 Matrix
3.3 Cristae

4 Mitochondrial DNA

5 Matrix granule

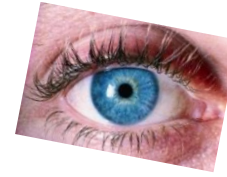
6 Ribosome

7 ATP synthase

2 Intermembrane space
2.1 Intracristal space
2.2 Peripheral space

1 Outer membrane
1.1 Porins

Eyes (1, 2)



Vision uses all the other senses. Vision usually becomes the dominant sense, using sensory integration messages from eyes, body & brain. Vision “drives imagination, creativity, and many types of intelligences”. (2)

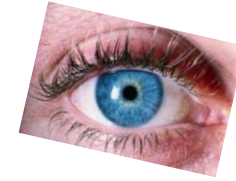
Two Parts of the Visual System that Integrate

1. Focal/Central Vision (conscious awareness, “what is that thing?”) (not integrated = hyperfocus on specific thing)
2. Ambient/Peripheral Vision (subconscious awareness, “where is my foot?”, feeds proprioceptive) (not integrated = dazed, distracted)

Essential Visual Skills

- Acuity (sharpness & clarity, at any distance)
- Focusing (you can maintain clarity while changing distances, “accommodation”)
- Fixation, Tracking (look at and accurately follow something moving. Pursuits in tracking can be smooth or [saccadic](http://en.wikipedia.org/wiki/Saccadic) (jumps ahead)
http://en.wikipedia.org/wiki/Visual_system “Saccades”
- Binocular Vision (both eyes move together as 1 team, otherwise leads to out-of-balance messages)
- Teaming (you can move, aim, and work the eyes as a team)

Eyes



Eyes are “one of the most nutritionally demanding organs of the body, profoundly affected by nutrient deficiency, and is often the first place disease appears, such as diabetes”.

More Words to Know

Visual Motor Integration (the brain gets balanced data from vision & other sensory inputs; responds with motor function)

- **Myopia** (nearsightedness)
- **Amblyopia** (“Lazy Eye”, vision from one eye has less clarity than the other, for no apparent health reason)
- **Strabismus** (“Wandering Eye”, usually from traumatic birth, infection, fever, something bad that happens)
- **Snellen Test** (20 ft. away, basic eye chart, visual acuity/clarity only)
- **Prism Lenses** (temporary vision intervention; lenses are concave or convex, bend light to strengthen the eyes)

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MichaelHyatt.com

Seth Godin

Silberman, M. (2006), *Active Training, A Handbook of Techniques, Designs, Case Examples, and Tips, 3rd Edition*, Pfeiffer.

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References

Muses:

- CoachingWithRoy.com
- Carolyn Myss
- Eckhart Tolle
- TED talks
- My awesome lady friends
- [Message 10.04.15 on gender & communication styles](#)

Curriculum:

- Dick, W., Carey, L, and Carey, J., (2005), *The Systematic Design of Instruction, 6th Edition*, Pearson.
- Wiggins, T. & McTighe, J. (2005) *Backwards Design: Understanding by Design, 2nd Edition*, Pearson.