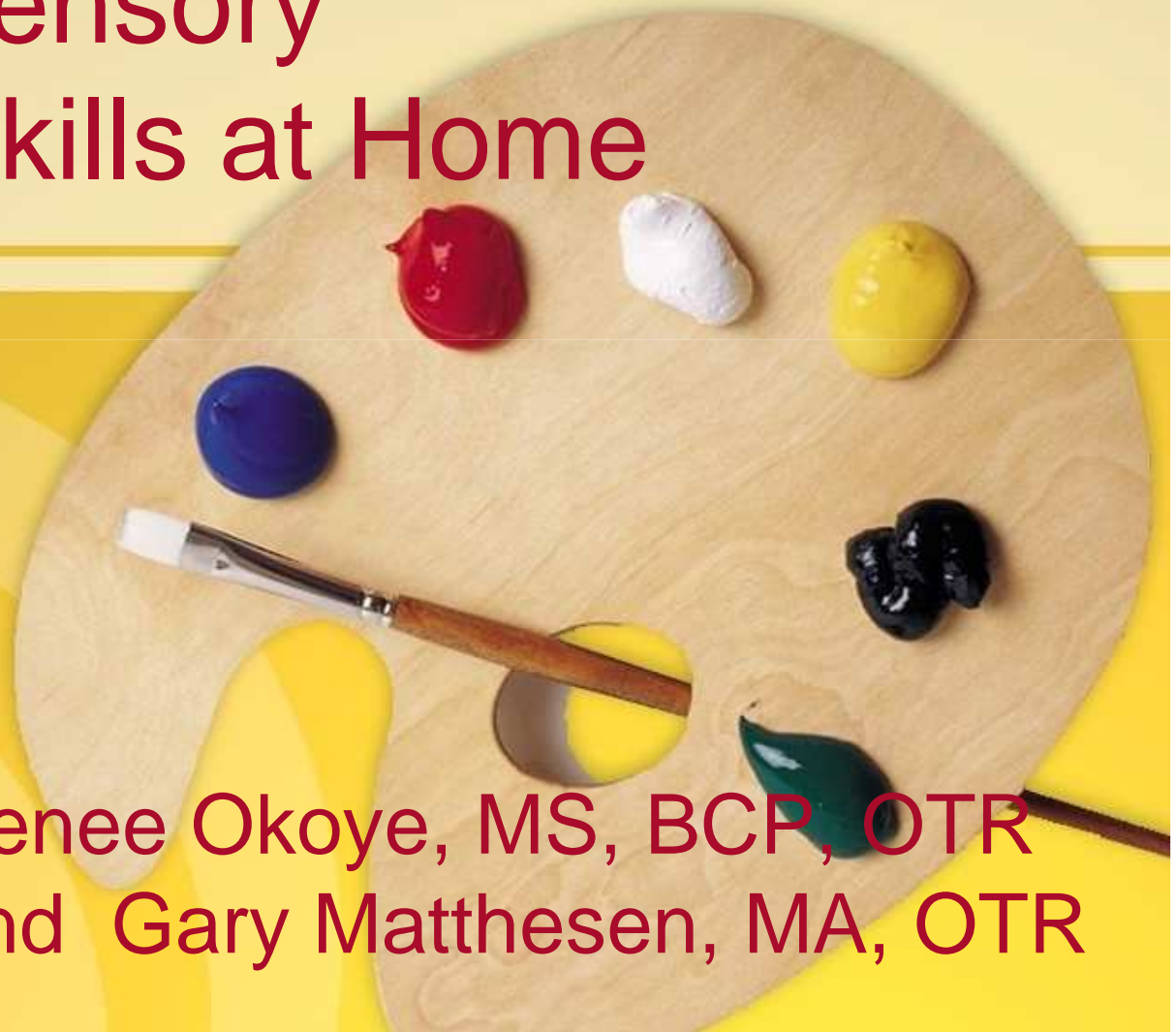




Supporting Sensory Processing Skills at Home

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What is Sensory Integration?

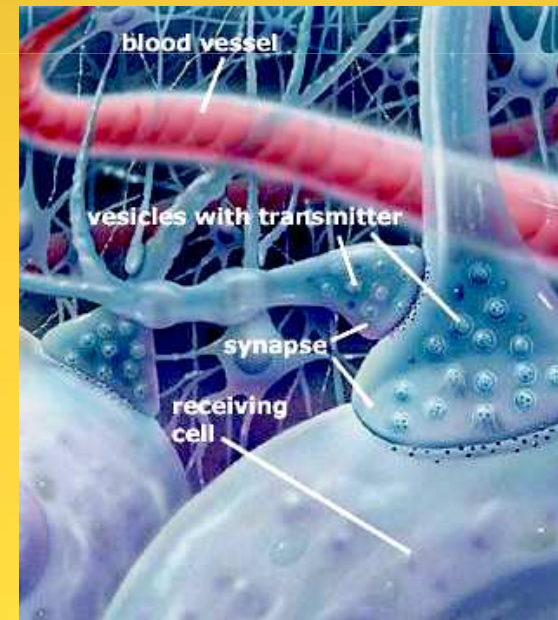
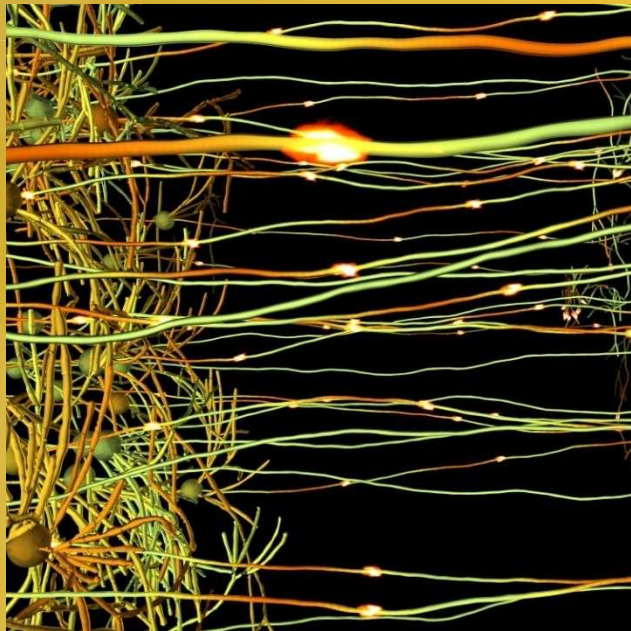
First identified in the 1960's by Dr. A. Jean Ayres, **Sensory Integration Disorder** is a developmental disorder that is characterized by deficits in the ability to:

- process and organize sensory information
- assign meaning to sensory events
- Transition into and respond to changing situations in a graded, adaptable manner

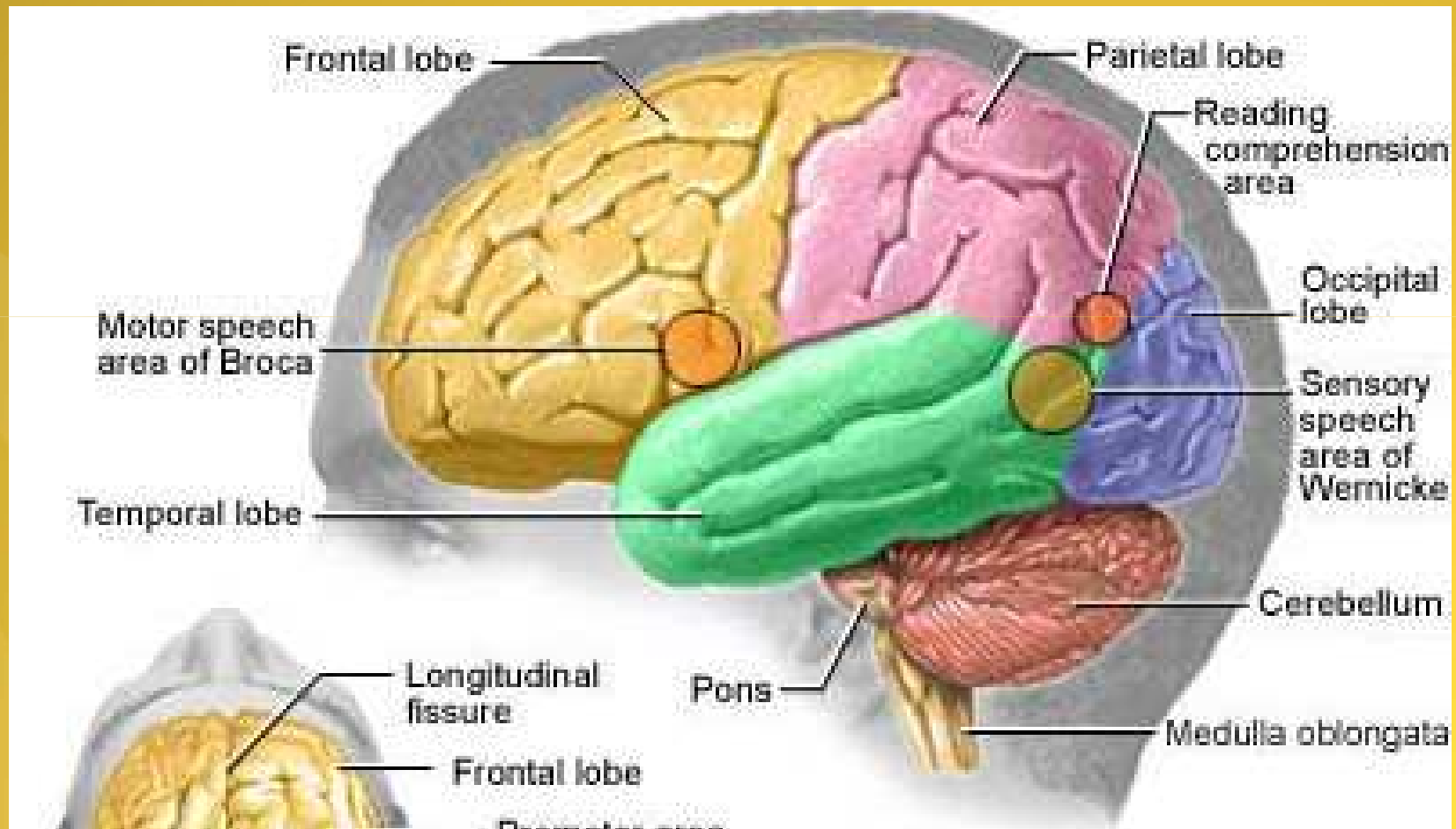


Early in Development

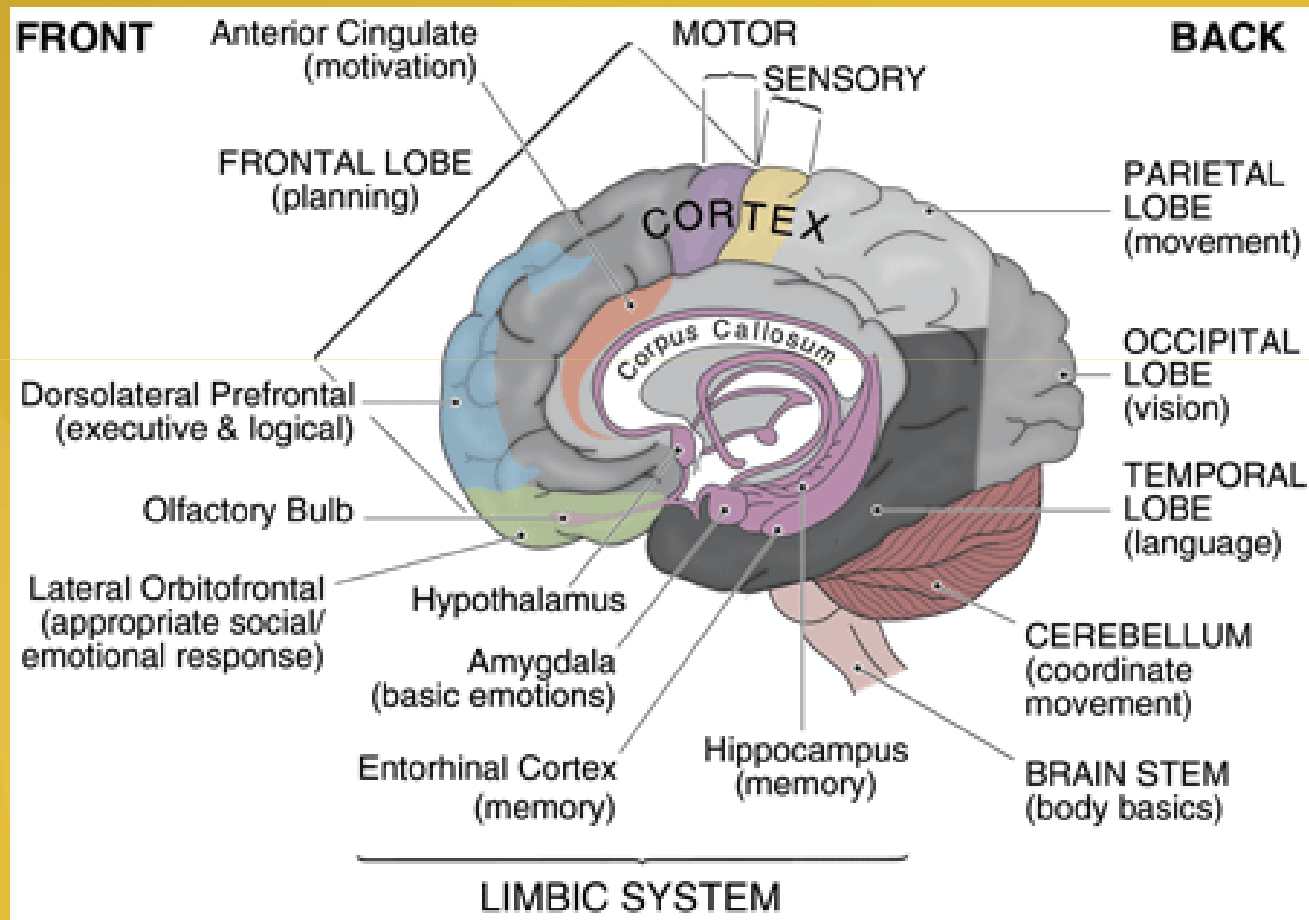
Neurons migrate Through a series of chemical and electrical fields to “hook up” with their targeted destinations in the cerebral cortex.



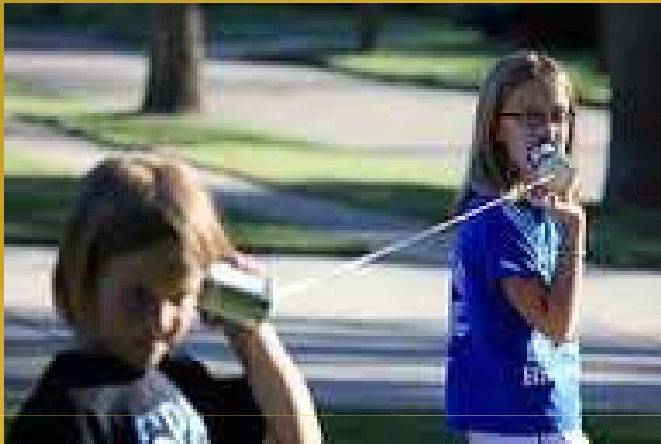
Target: The Cerebral Cortex



When Neural Pathways Fail to Link



When pathways between the auditory cortex and their corresponding targets become compromised

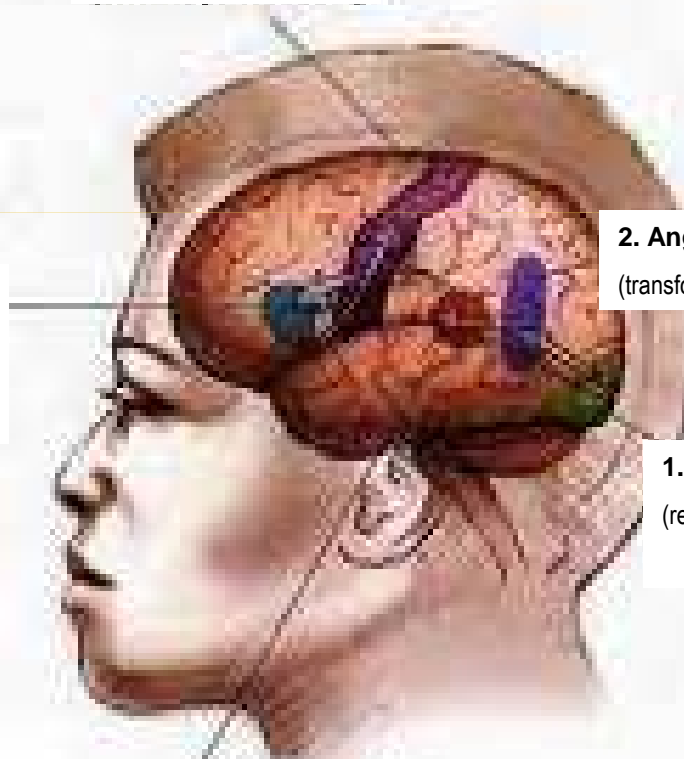


4. Broca's area

(controls speech muscles via the motor cortex)

5. Motor Cortex

(word is pronounced)



2. Angular Gyrus

(transforms visual representations into an auditory code)

1. Visual Cortex

(receives written words as visual stimulation)

3. Wernicke's area

(interprets auditory code)

When pathways between the visual cortex and their associated targets become compromised

- See a puzzle piece
- remember the name of the puzzle piece
- Identify the puzzle piece from touch alone
- Manipulate the puzzle piece into the right spot



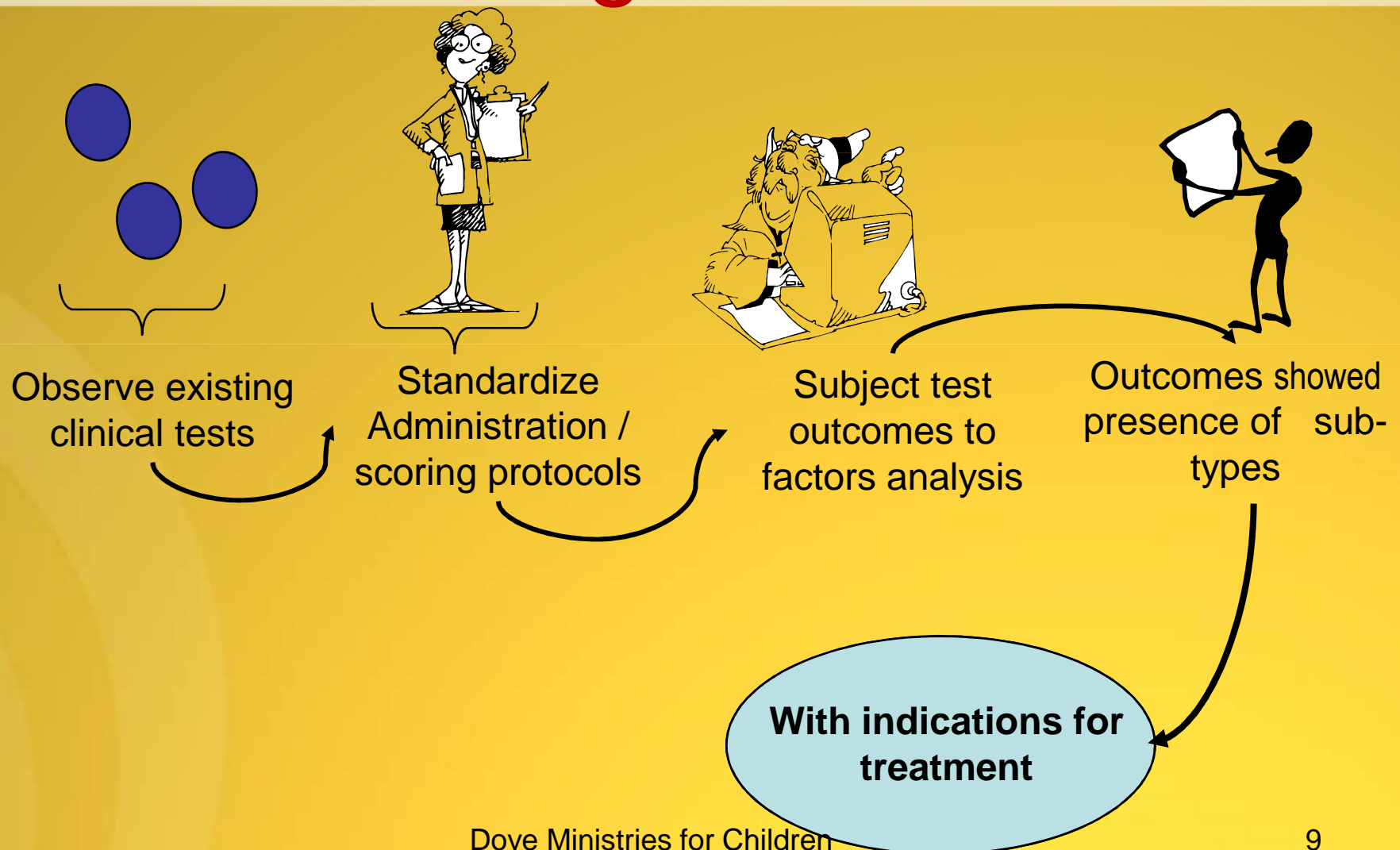
When pathways between centers for postural control and the motor cortex become compromised

Coordinating

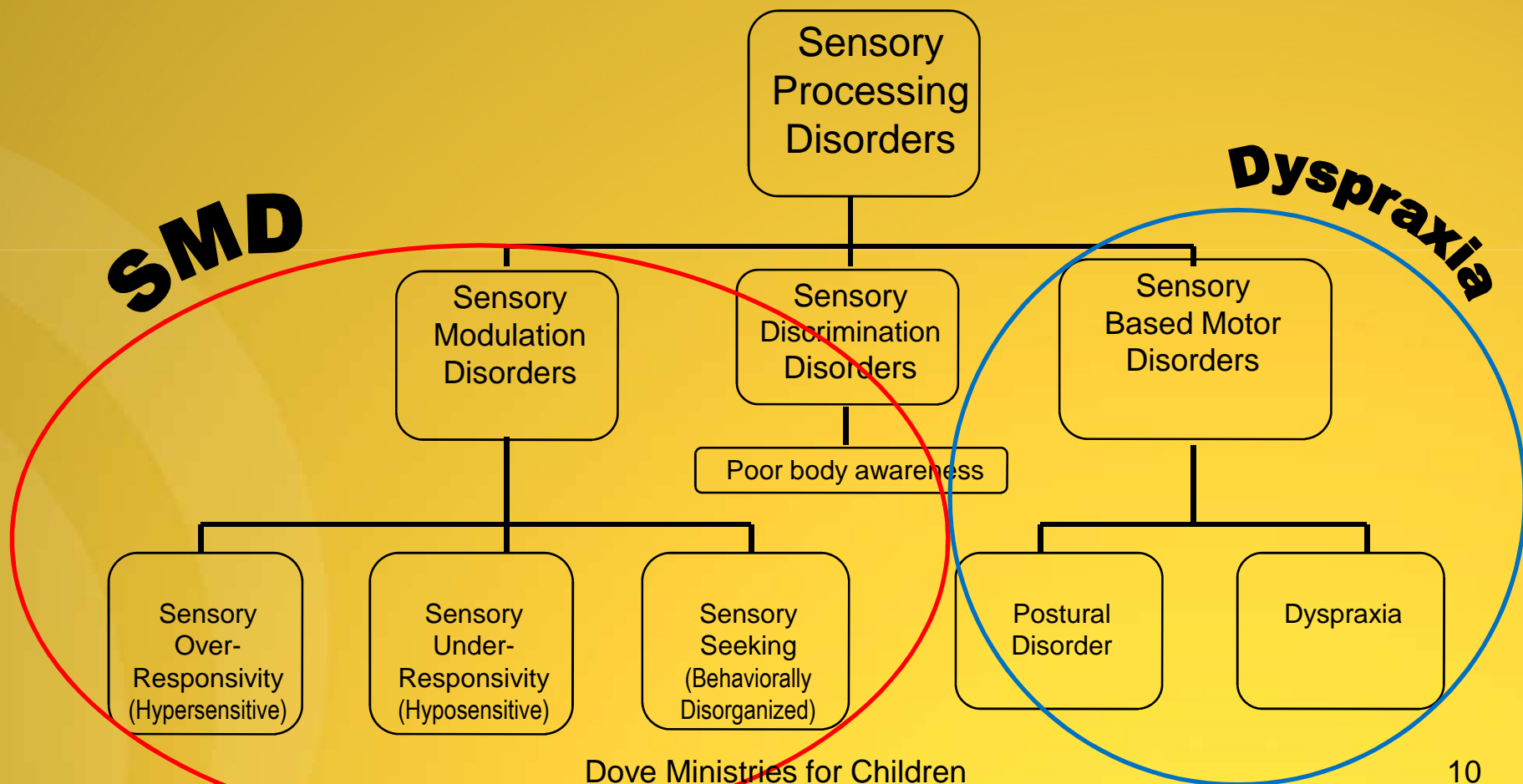
- Balance and vision
- Series of postural and hand function moves
- Eye and hand teaming
- Eye and foot teaming
- Anticipating weight shifts



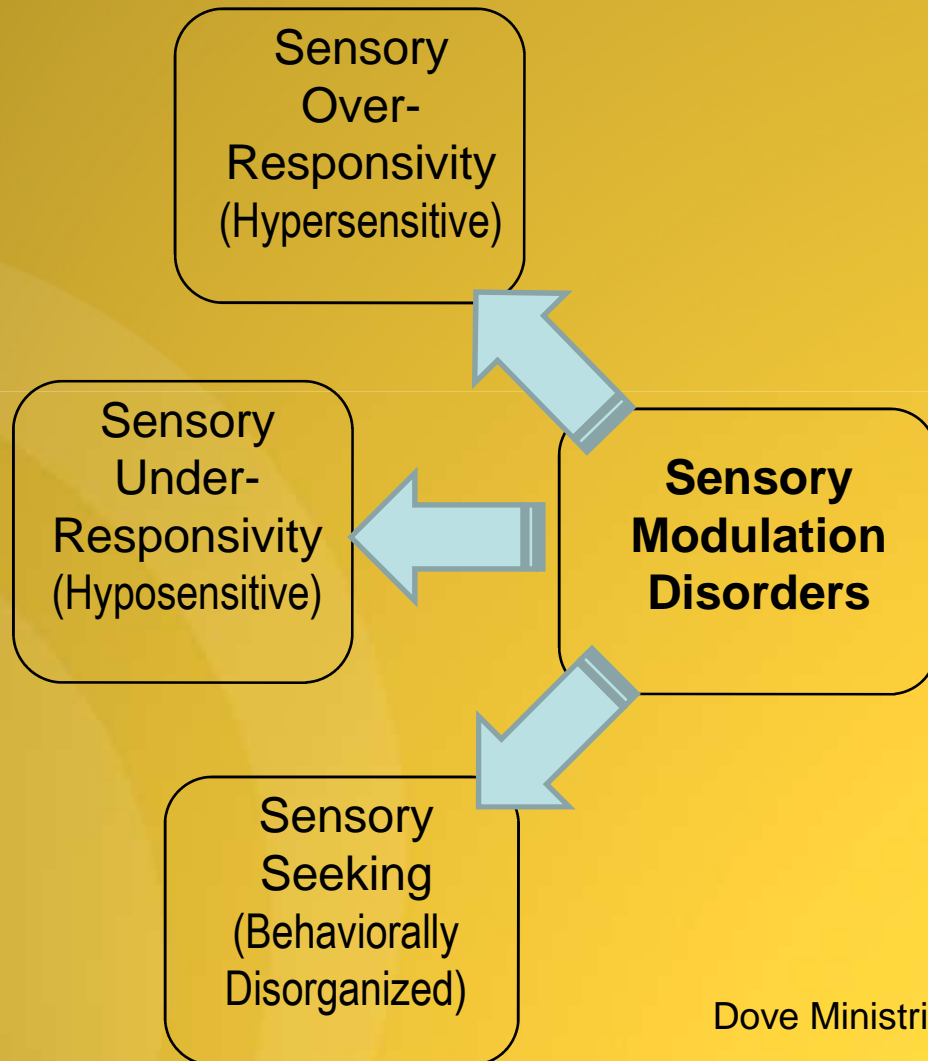
Identifying Sensory Processing Disorders:



Different Types of Sensory Integration Disorders:



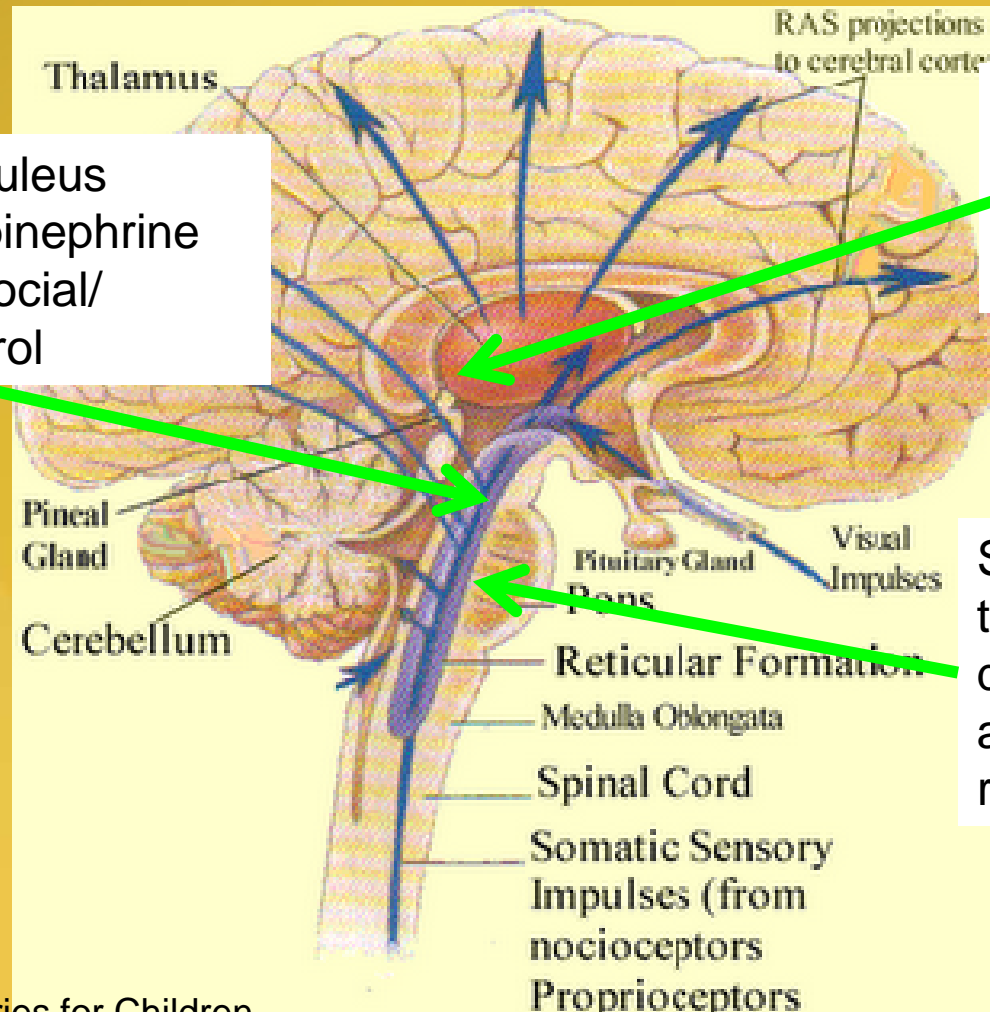
Sensory Modulation Disorders



Contributing Factors

- Heritable susceptibility
- Toxic burden
 - Environmental pollutants
 - Food intolerances
 - Infections
 - Exposure to neurotoxic agents
- Metabolic disorders
- Poor nutritional support

Biological Factors Contribute to Issues of Self-Regulation

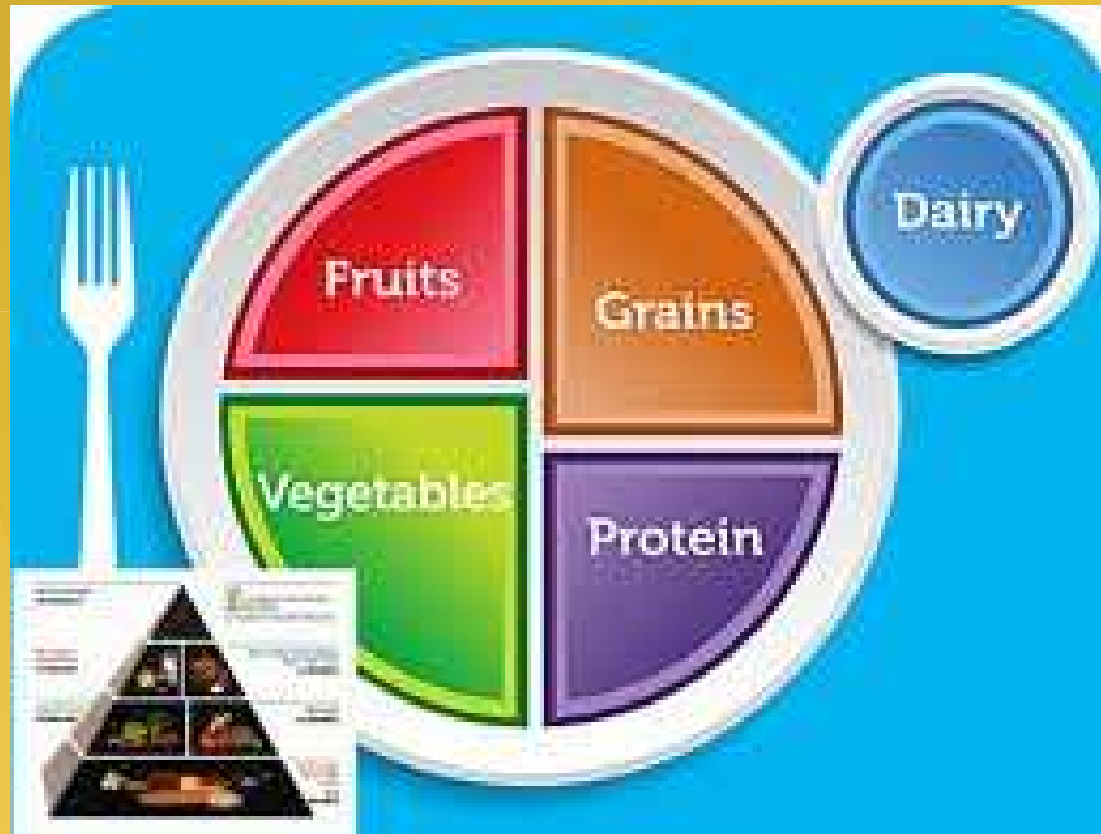


The Locus Ceruleus releases Norepinephrine which aids in social/emotional control

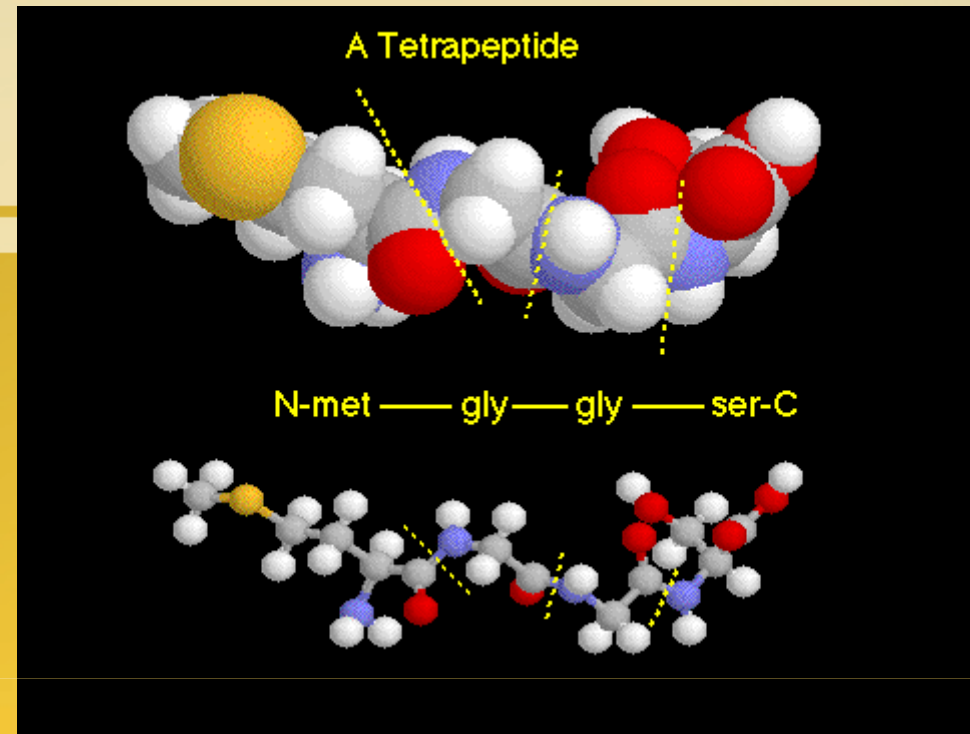
Dopamine released at the Substantia Nigra aids in attention to task

Serotonin released at the Raphe Nuclei decreases anxiety and aids in the ability to remain calm

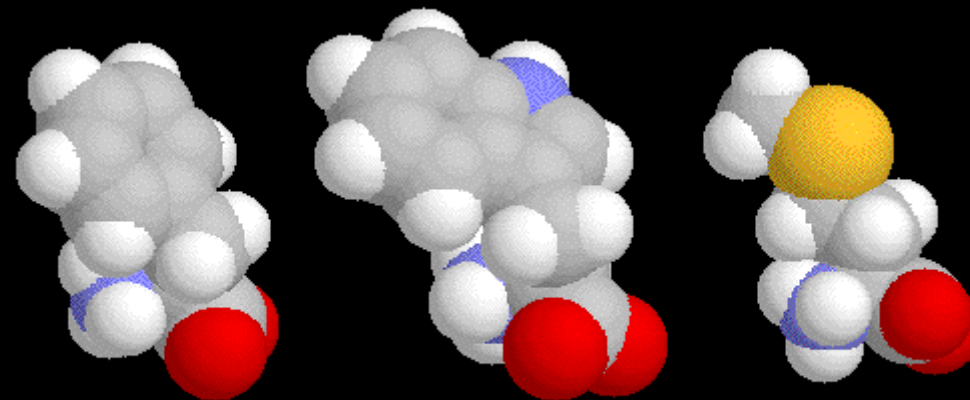
Healthy Eating Plate



The healthy plate allows for:



Amino acids with non-polar side chains (part 2)



Phenylalanine

Tryptophan

Methionine

Common Features Among Children with SMD

- Many of the children who have SMD also have issues with attention to some degree
- A high percentage of children who have SMD also have issues with auditory filtering to some degree
- Many of the children who have SMD also have difficulties with motor planning

Stimulating the Brain Stem

- Sensory integration treatment in conjunction with a home program can stimulate production of key neurotransmitter substances
- A key concern is to address the issues of sensory modulation dysfunction that function to inhibit more typical patterns of growth and development

Hyper-sensitive Children

respond in a defensive manner to seemingly innocuous sensory stimuli such as:

1. Sights



2. Sounds



3. Touch /movement



4. Taste/ food textures



Hyper-sensitive Children: Two different types

Research shows two distinctly different types of behavioral patterns for children who tend to be hyper-responsive to sensory stimuli

1. Fearful and Cautious
2. Negative, Oppositional, and at times defiant

The Fearful and Cautious Child

- Afraid to try new things, approaches unfamiliar situations with excessive caution
- Prefers repetition and absence of change
- Difficulty with transitions and unexpected changes in routine
- Prefers uniformity in the environment
- Tendency to avoid group play
- Tends to be frightened, shy, clinging in new situations

Caregiver Styles for the Fearful and Cautious Child

Can help to reduce the unwanted behaviors and include:

- Soothing interactions that respect the child's sensitivities
- Gradual and supportive encouragement to try new things
- Setting gentle, but firm limits on avoidance behaviors
- Enhanced flexibility

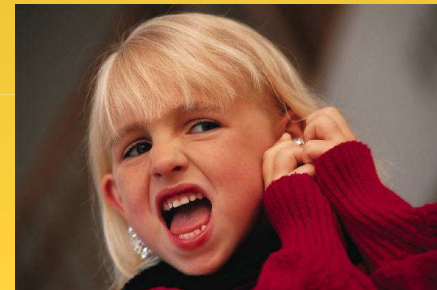
The Negative and Oppositional Child

- Strong preference for routines – can become almost compulsive in this regard
- Tendency to oppose the ideas of others
- Can become aggressive and impulsive, especially when overloaded with sensory stimuli
- Frequently does the opposite of what is asked
- Can also present as friendly, smiling (but still oppositional, not doing what was asked)
- Controlling

Caregiver Styles for the Negative and Oppositional Child

Can help to reduce the unwanted behaviors and include:

- Avoid power struggles by offering the child choices and opportunities for negotiation whenever possible
- Firm guidance and limits
- Soothing, empathetic support of slow, gradual change



The Under-Aroused Child

Quiet and passive, disregarding or not responding to stimuli of typical intensity available in their sensory environment.

- Alternatively, they may be so enthralled by a world of their own imagination that they have trouble engaging in the here and now.
- They may appear withdrawn, difficult to engage, and/or self-absorbed because they have not registered the sensory input of their environment
- seeming disinterest in exploring relationships or even challenging games or objects



Caregiver Styles for the Under-Aroused Child

- High-energy interactive input help engage the child in activities and relationships and foster initiative.
- These patterns involve energized wooing
- Robust responses to the child's cues, however faint



Sensory Seeking Children

- An inordinately high activity level in spurts
- Followed by periods of relative calm



Children who are Sensory Seeking

Clues that children are sensory seeking include:

- a) Sights – prefers **bright** colors, scenes, etc.
- b) Sounds – prefers loud sounds, noisy child
- c) Movement & touch – prefers quantities of moves, prefers tight hugs, tightly tucked into bed, shoe laces tied tight etc.
- d) Food textures, tastes – prefers foods with distinctive tastes, textures, etc.

Caregiver Styles for Sensory Seeking Children

- Provide with strong sensation in the form of movement, sound, touch, or visual stimulation
- Give the child many opportunities to acquire more stimulation, preferably through interactive, modulated play
- Provide limits for impulsive unsafe play behaviors



Another Subtype: The Dyspraxic Child

- Dr. Ayres identified different types and different underlying causes for sensory based disorders of coordination
- Postural issues
- Motor sequencing issues
- Poor differentiation of feedback from the body



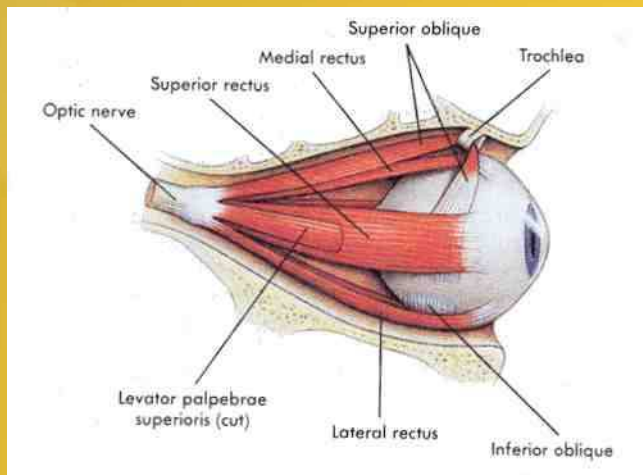
Motor Systems Govern Coordination

Key components

- Vision to direct body moves
- Language to talk through body moves
- Body awareness to position body parts while they are moving
- Control of posture and balance while the body moves

Did you know?

Research has shown that 90% of children who have coordination deficits also have coordinating the tiny muscles responsible for moving the eyes?



This is why vision exercises are often needed in addition to muscles to strengthen the core of the body

Extra ocular muscles of the eye

Vestibular, Touch and Movement Detectors Contribute to Coordination

When the brain centers receive too much or too little input from these sensory receptors, motor skills are impacted due to:

- Poor body awareness (Somatosensory Dyspraxia)
- Poor motor sequencing skills (Disorder of Motor Planning and Bilateral Motor Integration)
- Poor integration of vision with posture (Postural – Ocular Motor Disorder)

Different Types of Dyspraxia

- Different causes, different treatments
- This is where the home program really comes to the forefront as the parents partner with therapists to provide carefully selected activities on a daily basis



Dove Ministries for Children

