

The Brain and Cognition



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**Cognitive Abilities
and
Intervention Strategies
(CAIS)
Educational Series
Session 1**

**On Improving MI Practices
website at**

<https://www.improvingmipractices.org>

Brain Changes and Cognitive Abilities

- **Brain changes cause changes in cognitive abilities**
- Cognitive abilities include ability to **think, understand & remember**
- Each person has unique set of cognitive **strengths** and weaknesses (or **needs**)
- In dementia most cognitive abilities get weaker over time

Dementia and Cognitive Abilities

- A person goes through **stages** of dementia as the brain changes increase and spread across the brain
- As each part of brain is affected by brain changes, the cognitive abilities associated with that part **get weaker**
- The abilities associated with parts already affected **continue to get weaker** and weaker

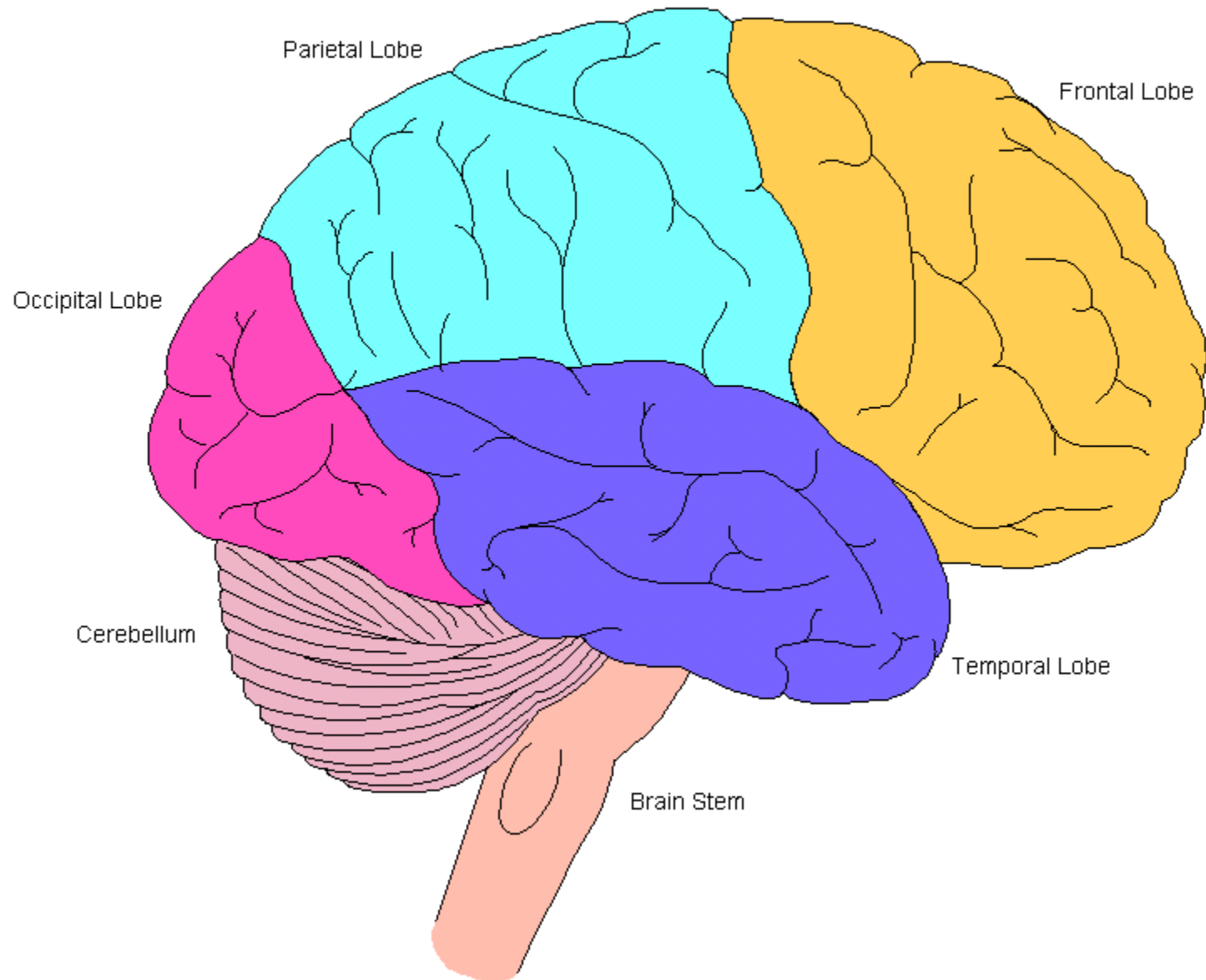
Causes of Dementia

- The **most common** cause of dementia is **Alzheimer's Disease**
- Some other causes are:
 - **Dementia with Lewy Bodies**
(abnormalities within the brain cells)
 - **Frontotemporal Dementia** (frontal & temporal lobes affected)
 - **Vascular related dementia** (strokes or changes in blood supply to the brain)

Brain Changes Cause Behavior Changes

- **Brain changes cause cognitive** changes in a person's ability to think, understand, and respond
- The **cognitive** changes may **cause distress** and **behavior** that is upsetting
- **Behavior changes result from brain changes and cognitive changes, not from stubbornness, manipulation, “meanness” or “corneriness”**

Right Hemisphere of the Brain



Hippocampus

The hippocampus helps you **remember** recent events, such as:

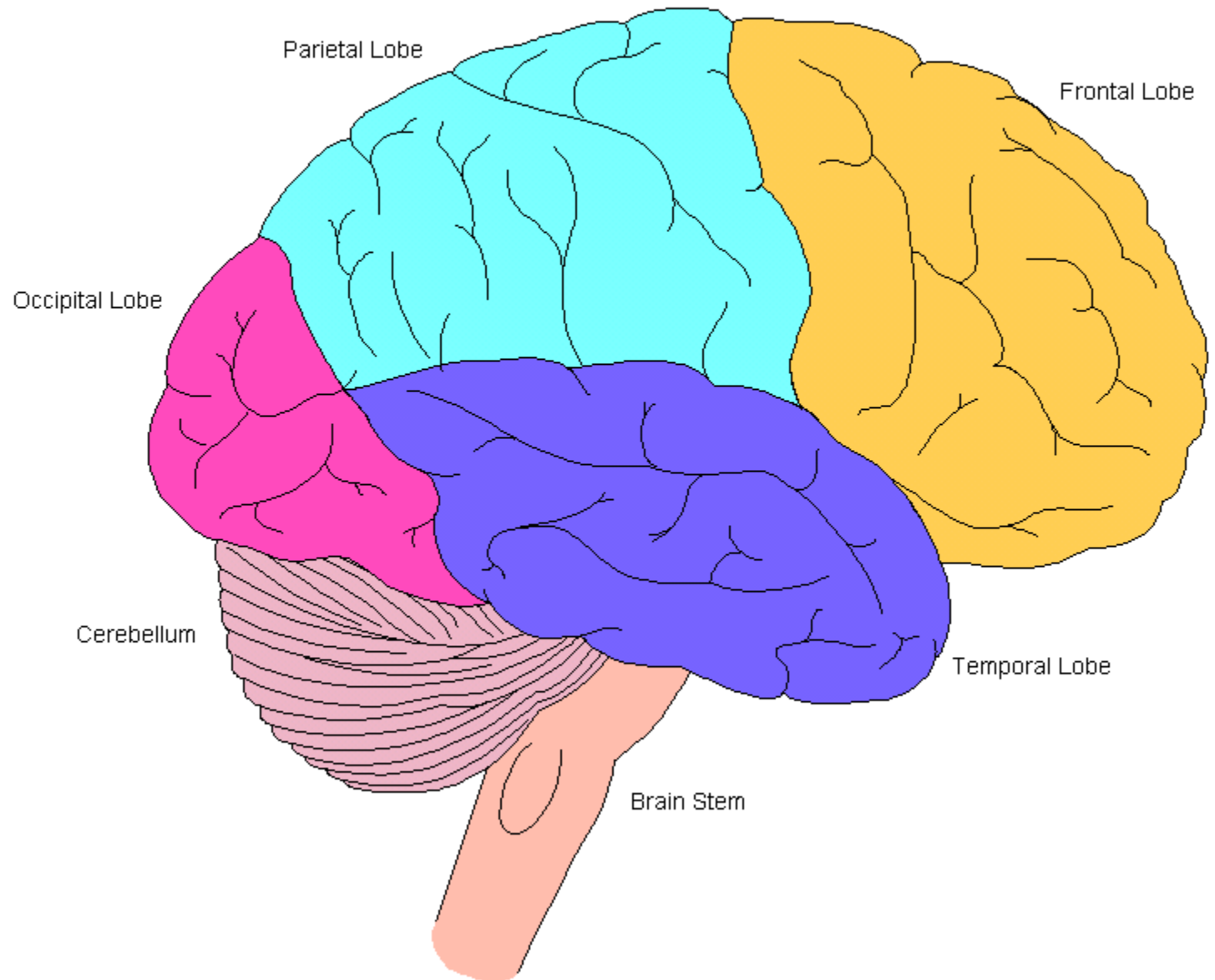
- What you just said
- What you had for lunch
- That your daughter just visited



When your Hippocampus changes you may

- **Repeat** a question or concern
- Forget something someone just said
- Forget that your daughter just visited
- Be **surprised and angry** when someone begins to take off your clothes, because you forgot you just agreed to take a shower

Right Hemisphere of the Brain



Left Temporal Lobe



The left temporal lobe (and Broca's area in the frontal lobe) help you:

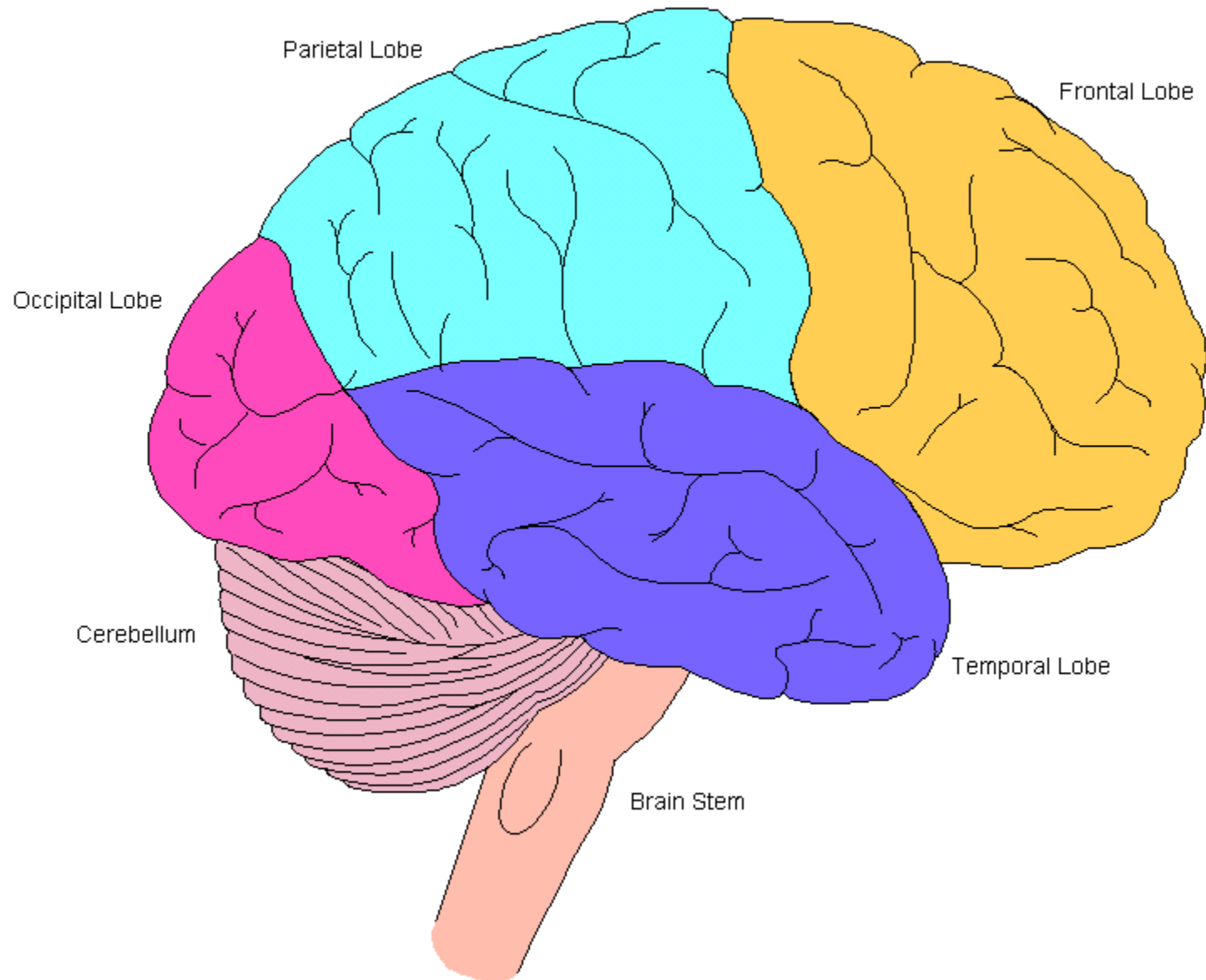
- **Understand** language
- **Speak**

When your Left Temporal Lobe (and Broca's area) change

You may:

- Make nonsense sounds
- Use the wrong words
- Substitute a similar word/ use fewer words
- Say “yes” when you mean “no”
- Not understand what someone tells you
- Use swear words without realizing it
- Take longer to understand and respond

Right Hemisphere of the Brain



Right Parietal Lobe

- Helps you **locate** and arrange **objects** in space
- Tells your brain to **notice** everything in your visual field (i.e., everything in the space you see)



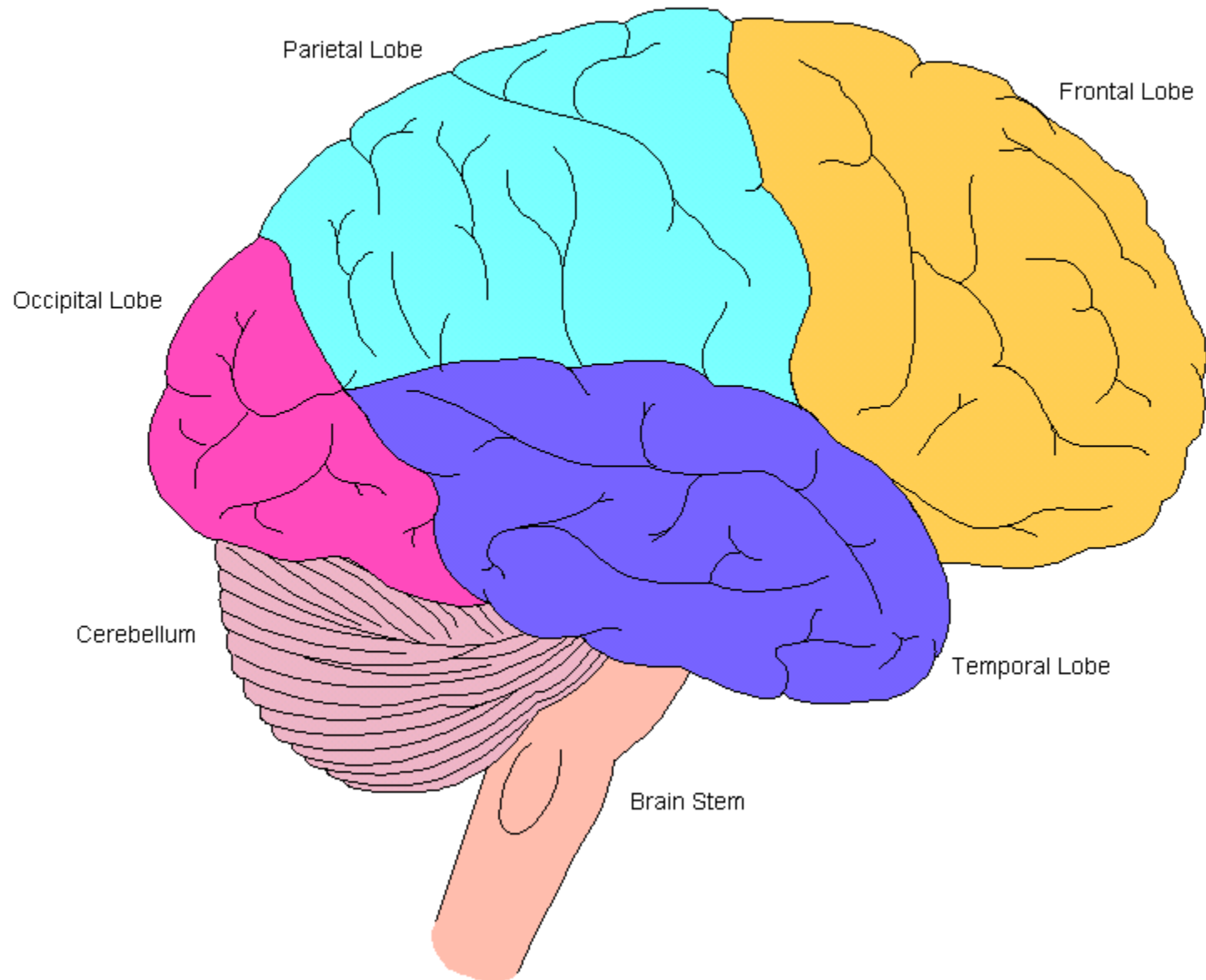
When your Right Parietal Lobe changes you may

- Use excessive **energy** to put your arm into the armhole of a shirt
- Put a glass down on the edge of a table or plate, rather than beyond it
- Have difficulty responding to stimuli in the left part of your visual field
- Have difficulty tolerating **clutter**, **many objects**, and **movement** in the environment

You May Also

- Feel angry, frustrated, or fatigued from the **confusing stimuli** in the environment
- Respond better when someone **approaches** from your **right** (or **front** if there is **dementia**)
- **Resist** stepping into a tub or shower because you don't know:
 - The height of the side of the tub or edge of the shower
 - Where your feet or hands should go
 - How deep the water is

Right Hemisphere of the Brain



The Frontal Lobe Helps You

- Do more than one thing at once
- **Prioritize** or know what to focus on
- Sense how much **time** is passing



The Frontal Lobe Also Helps You

- Switch your **attention** from one idea or task to another
- Know when a **task is done**
- Keep **focused** on a task until it's done
- **Control impulsive** responses to thoughts and desires
- Identify the **order** of steps for a task

When your Frontal Lobe changes you may

- Have **difficulty focusing** on a task, object, event, or someone speaking
- Be **overwhelmed** when someone moves, talks, gestures at the same time
- Have difficulty following the logic of an argument
- Need the most **important words** said **first** in a sentence

You May Also

- Need **short simple** words and sentences
- **Refuse** a task because you can't think of how to do it
- **Stop** a task before you're done because you think you've been doing it long enough
- Be **unable to stop** from striking or grabbing someone because you can't control impulses or switch gears quickly

Brain Changes Cause Distress

- Changes in the brain and cognitive abilities can cause confusion and misunderstanding which can lead to distress
- Factors that can make it harder or easier for a person and so increase or reduce distress:
 - Their **cognitive**, emotional, or physical condition
 - What's happening in the **environment** around them
 - How we **communicate** with them
 - How we **organize** a particular **task**

Four Factors to Examine

To help a person in general or during a task, examine:

- **Person**
- **Environment**
- **Communication**
- **Task**

Help based on Understanding

- We need to understand how each of the **four factors** is making communication or a task easier or harder for this **person**
- Once we see where the strengths and needs are, we know what to change in:
 - The **environment**
 - Our **communication** strategies
 - The **task** itself

Help Cognitive Abilities

- Because of changes in the brain and cognitive abilities, a person needs us and the environment to **address their cognitive needs and strengths**
- The more we know about this person's cognitive needs and strengths, the more we will **know how to help**