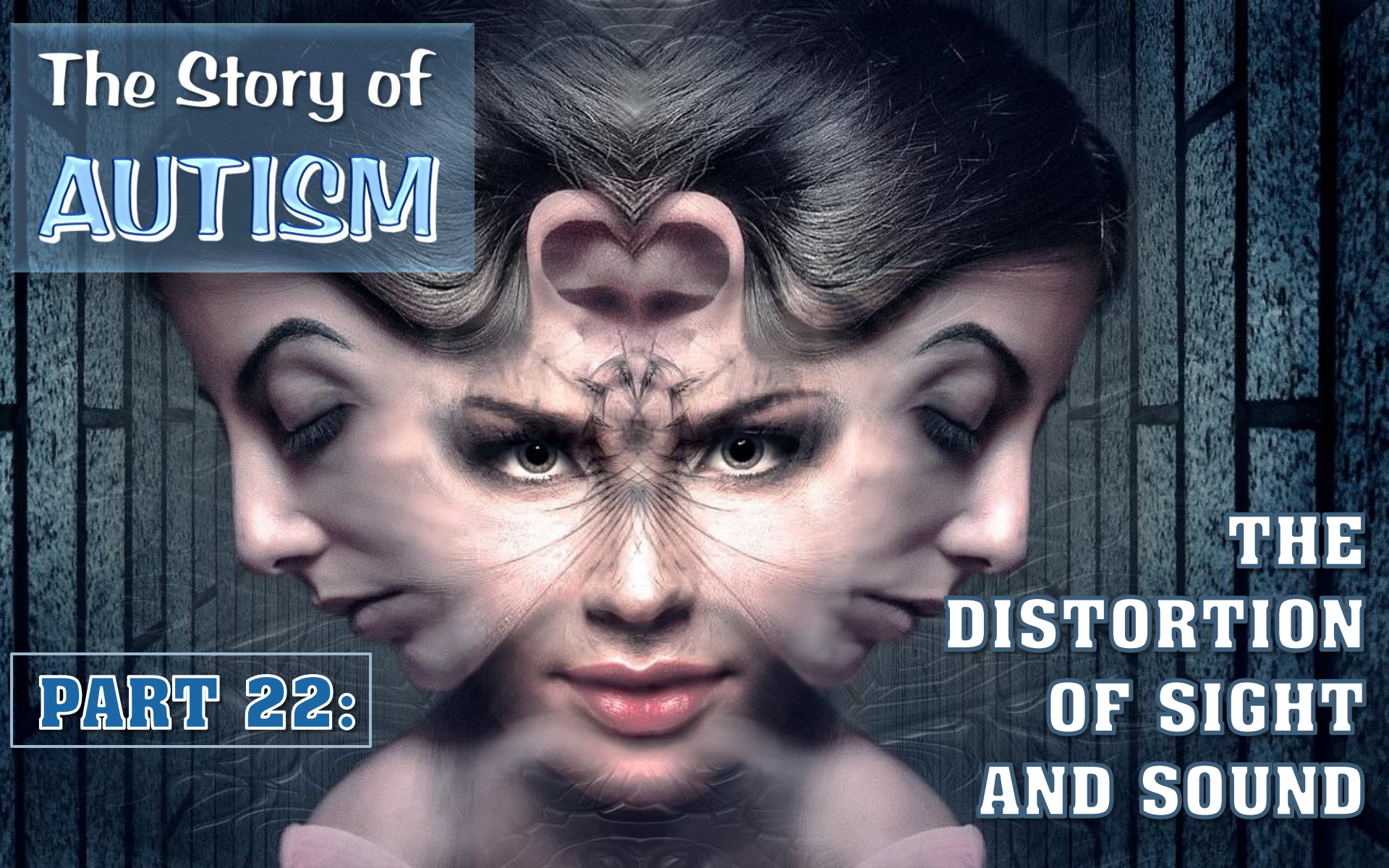
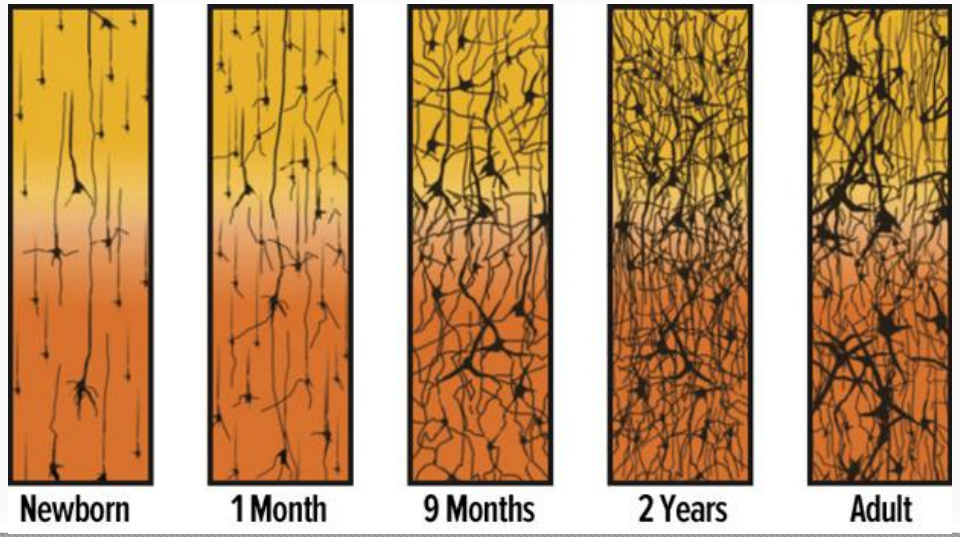

The Story of
AUTISM
PART 22:
THE DISTORTION OF SIGHT AND SOUND

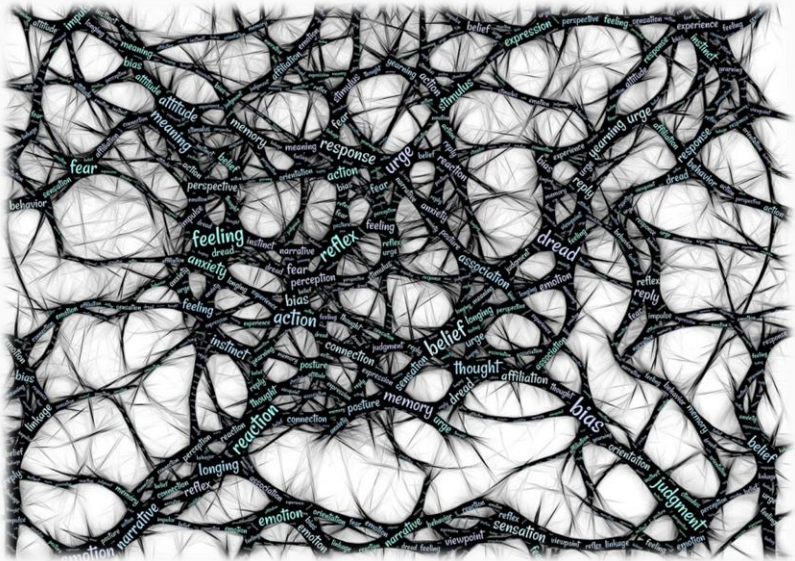
THE STORY OF AUTISM: Distortion of Sight and Sound

The cerebral cortex starts off as a blank slate when a baby is born. But it begins to fill in rapidly as the baby begins to explore his/her surroundings, new neurons fire and connections are made on a continuous basis.



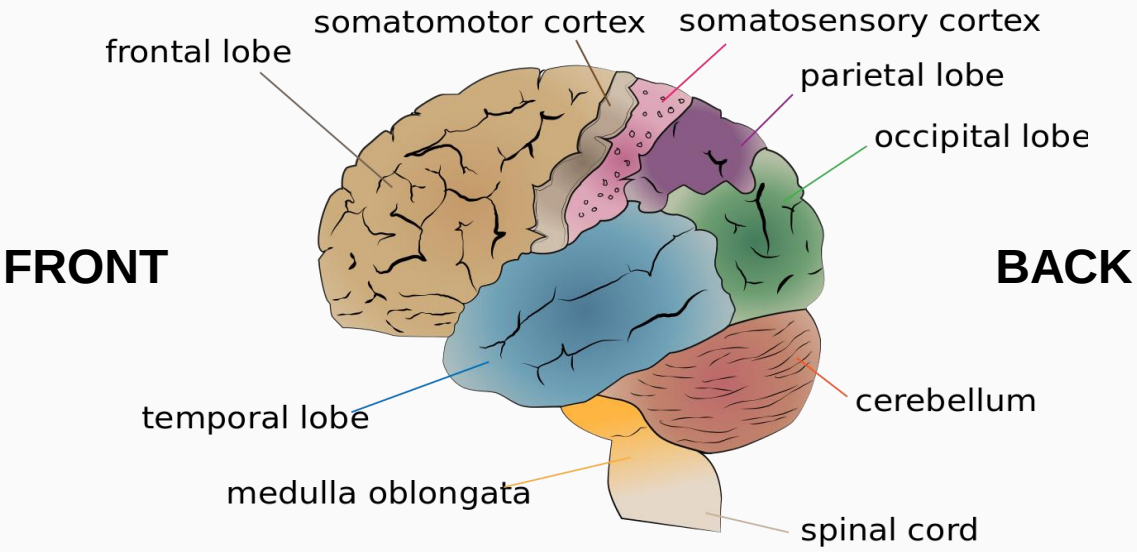
THE STORY OF AUTISM: Distortion of Sight and Sound

By the time we reach adulthood, our brain is pretty well connected. **But connections are only as good as the brain cells and systems they are connecting.**



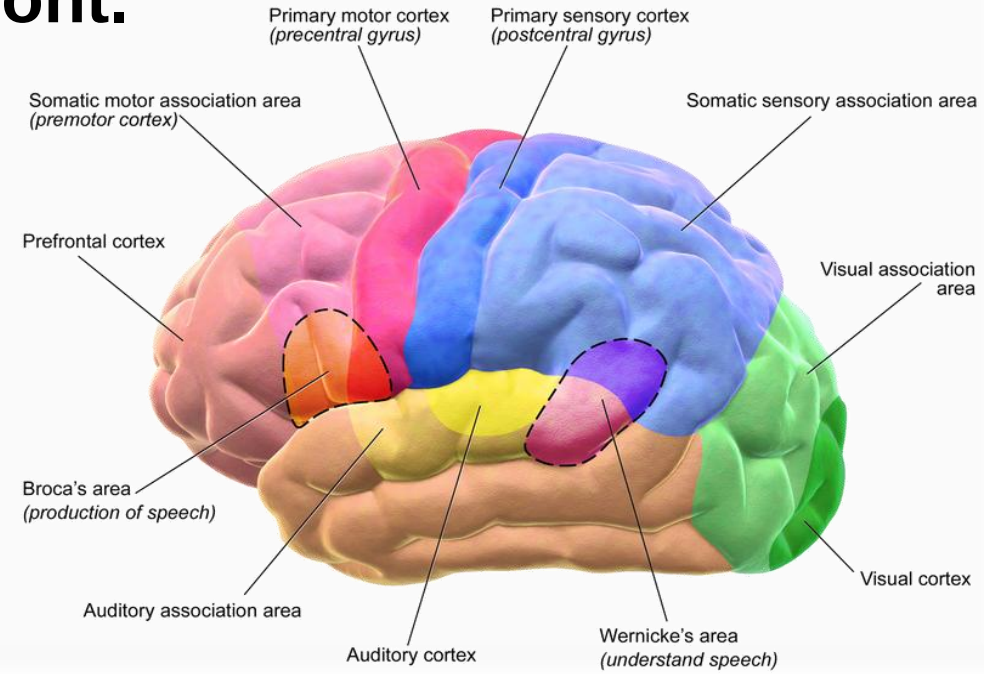
THE STORY OF AUTISM: Distortion of Sight and Sound

The brain develops from the bottom up and from back to the front. So, this is how we can trace the functional impact of the autism wiring pattern.



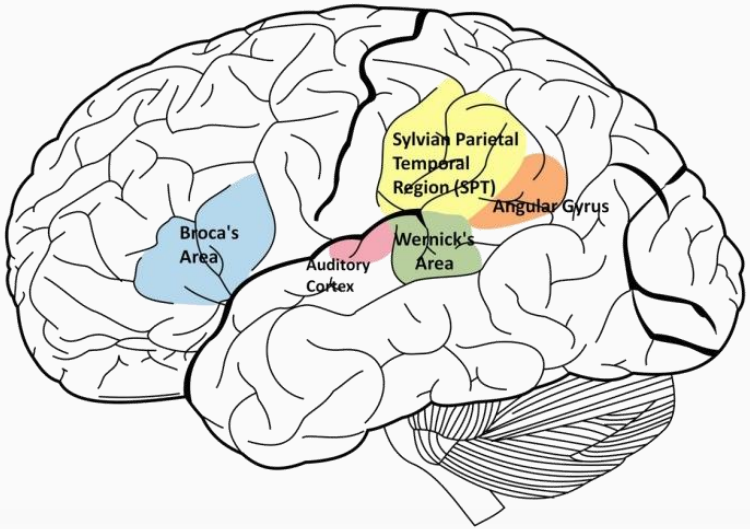
THE STORY OF AUTISM: Distortion of Sight and Sound

Sensory motor processing gets more complex and complicated the further you go from the back of the brain to the front.



THE STORY OF AUTISM: Distortion of Sight and Sound

It shouldn't be that surprising then that the speech production of people with autism is impaired. **Broca's area**, the area responsible for integrating word production with word comprehension, is at the tale end of the processing chain, because it requires the most intricate and integrated input.



THE STORY OF AUTISM: Distortion of Sight and Sound

What starts out at as simple sights and sounds at the back of the brain, becomes progressively more fine-tuned and refined until they become spoken words and thoughts, accompanied by appropriate gestures at the front of the brain.

THE STORY OF AUTISM: Distortion of Sight and Sound

In the typical brain, these are then relayed down to the mouth and body so they can be carried out.

In the autistic brain, this processing chain begins to break down the further forward it goes, as more and more information is added into the mix.

THE STORY OF AUTISM: Distortion of Sight and Sound

This happens not only because more and longer neural connections and synapses are involved, but also because the further forward you go, the more information from the eyes and ears has to intermingle with skewed sensory data sent up from the cerebellum and other lower structures.

Pre-motor Area

Motor Cortex

Primary Somesthetic Area

Secondary Somesthetic Area

Broca's Area

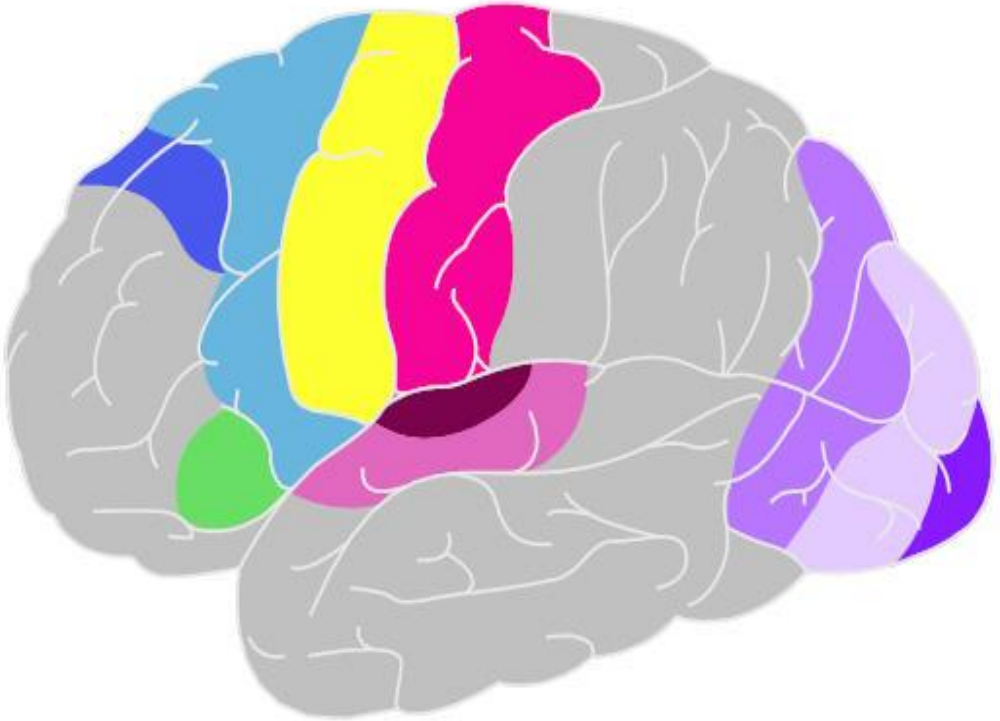
Primary Auditory Area

Secondary Auditory Area

Secondary Visual Area

Secondary Visual Area

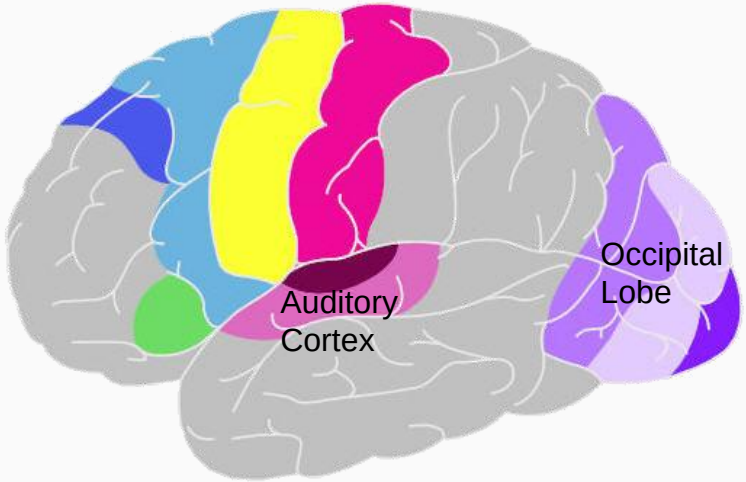
Primary Visual Area



THE STORY OF AUTISM: Distortion of Sight and Sound

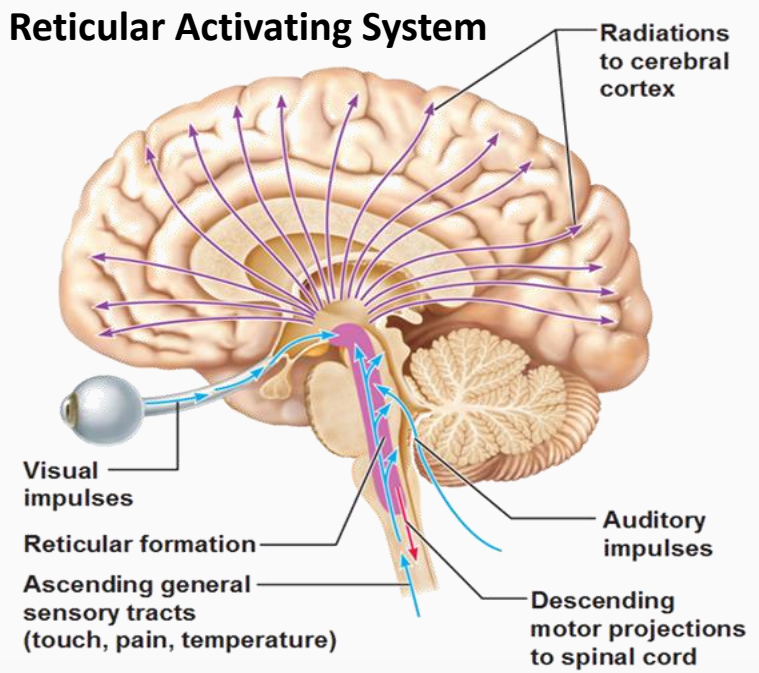
If you look at the image below, you'll see that visual intake data from the eyes starts off at the back of the brain in the occipital lobe (purple shaded area).

Auditory intake starts in the dark pink area, the auditory cortex.



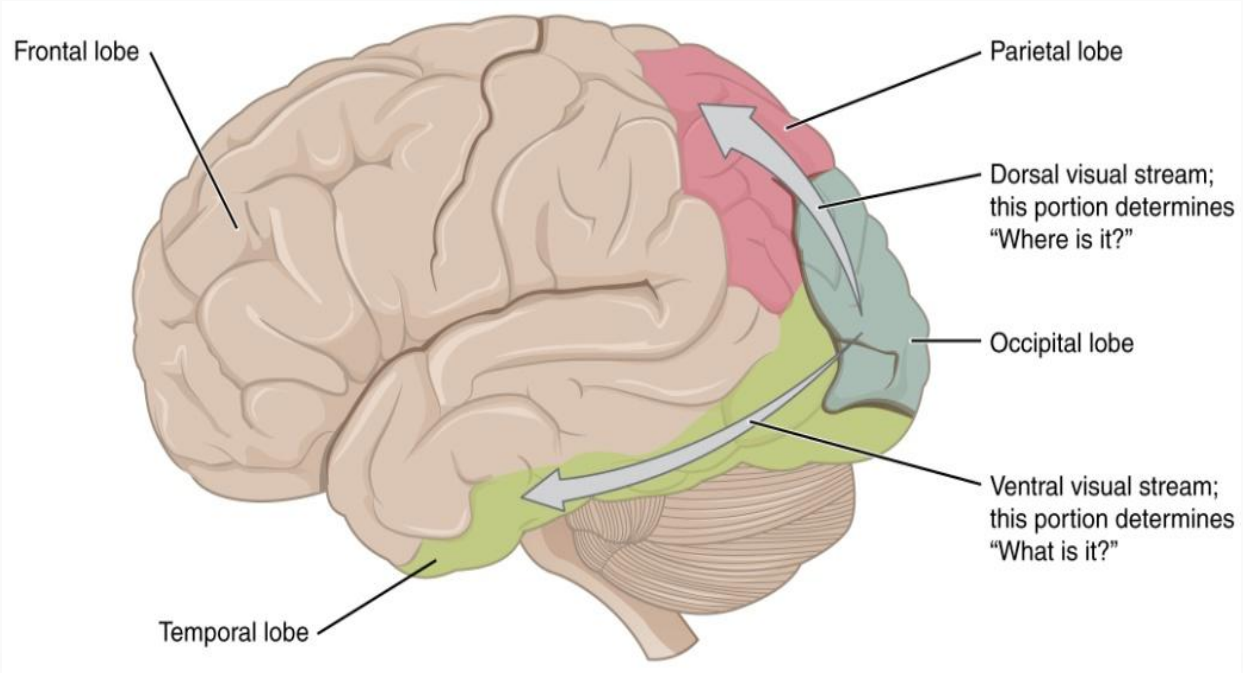
THE STORY OF AUTISM: Distortion of Sight and Sound

Due to some degree of RAS dysfunction in the autistic brain, even before visual and auditory impulses begin to make their way forward in the cerebral cortex, they are atypical; more disorganized and less modulated.



THE STORY OF AUTISM: Distortion of Sight and Sound

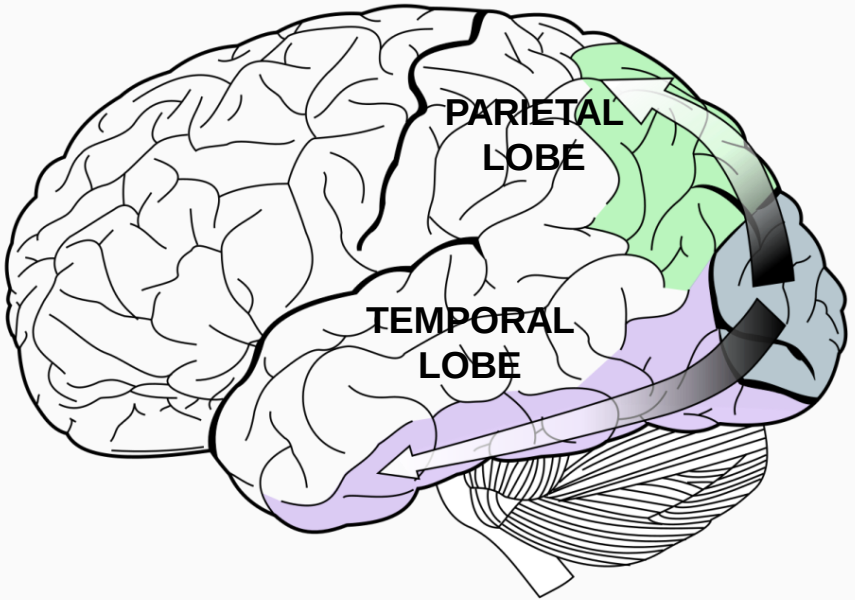
So this unmodulated, unfiltered sight and sound stimuli starts to move forward along the outer cortex.



THE STORY OF AUTISM: Distortion of Sight and Sound

Some of it travels along the top of the brain on the **dorsal track** to the **parietal lobe**.

Some of it travels along the bottom of the brain on the **ventral** track to the **temporal lobe**.



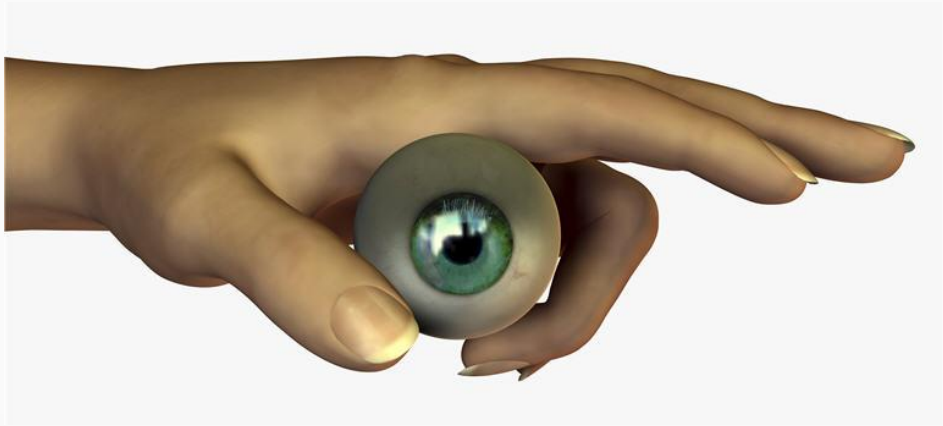
THE STORY OF AUTISM: Distortion of Sight and Sound

In these lobes, the unfiltered RAS sensory data starts to mingle with the dysmetric (unbalanced) feedback data sent up from the cerebellum.

In the parietal lobe, the sensory data is primarily proprioceptive, a sense that is particularly problematic for individuals with autism.

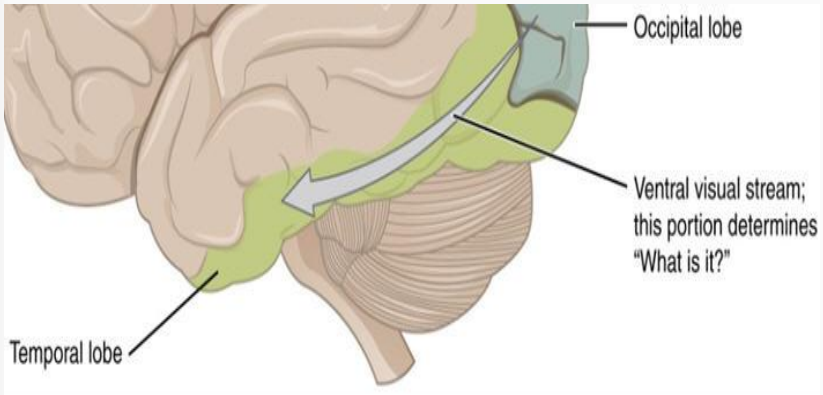
THE STORY OF AUTISM: Distortion of Sight and Sound

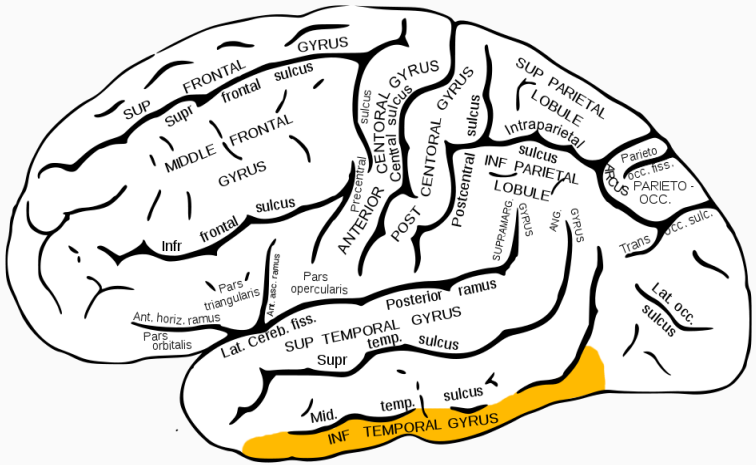
So, when unfiltered vision combines with sensations of touch that are not precise, **hand eye coordination is compromised**. All gross and fine motor actions that combine vision with the movements of the hands, arms and legs will likewise be impacted.



THE STORY OF AUTISM: Distortion of Sight and Sound

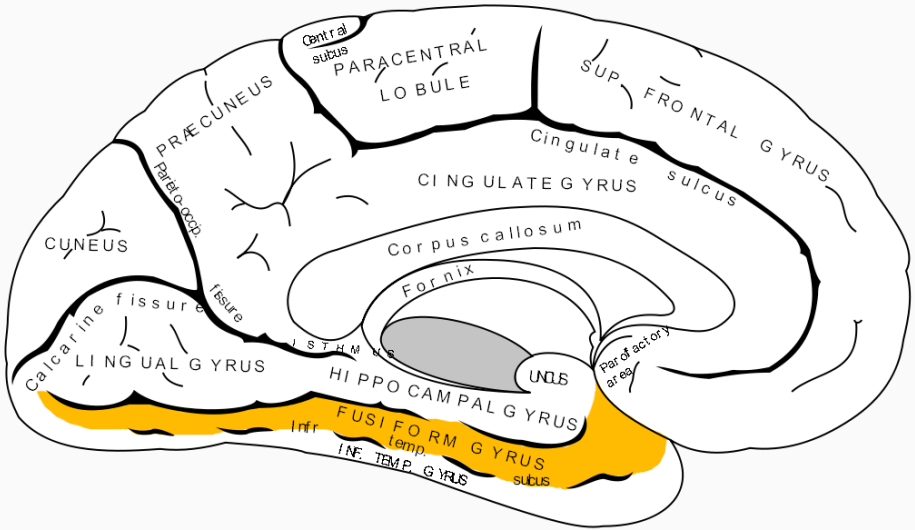
When sight stimuli travel the ventral route (the WHAT pathway) they pass through several key points. The first is the **Inferior Temporal (IT) Cortex**, where letters and words are encoded.





THE STORY OF AUTISM: Distortion of Sight and Sound

And the second is the **Fusiform Gyrus (FG)**, where facial recognition takes place.



THE STORY OF AUTISM: Distortion of Sight and Sound

The difficulty kids with autism have with looking at faces and recognizing facial expressions is no doubt attributable to a problem in the Fusiform Gyrus.

THE STORY OF AUTISM: Distortion of Sight and Sound

My daughter Meaghan described her difficulty with facial recognition this way:

I don't focus on how people look because features are slippery and they don't get the right trigger to turn on my brain.

THE STORY OF AUTISM: Distortion of Sight and Sound

When I asked her why it was difficult for her to look at herself in a mirror, she replied:

Because I can't be sure I am inside my body. I look pretty okay, but I feel very yucky.

GO ON TO THE NEXT PRESENTATION