

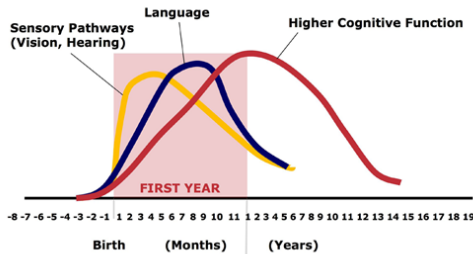
Hearing Grows Your Child's Brain

Brain Development & Hearing Loss

Hearing typically starts at 4 months gestation. It contributes to the early foundation of development of neurons – the basis of language and future learning.

Human Brain Development

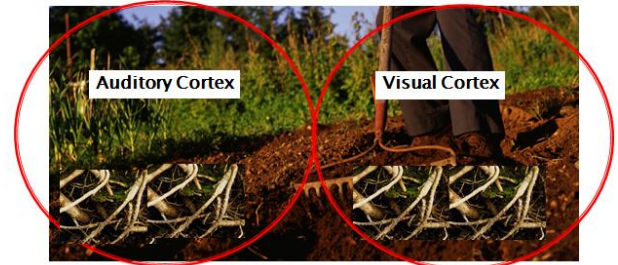
Neural Connections for Different Functions Develop Sequentially



http://developingchild.harvard.edu/index.php/resources/briefs/inbrief_series/inbrief_the_science_of_ecd

Brain Development – why hearing aids can't wait

- Due to prenatal development, each neuron in the brain has approximately 2,500 synapses, or connections.
- Consider the auditory / visual cortex as early roots in a spring garden, ready to grow.

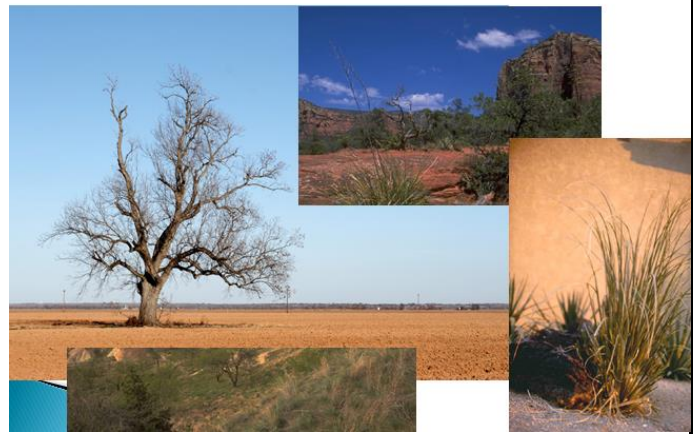


Brain Development – why hearing aids can't wait

- As a result of **constant sensory stimulation** and experiences, the number of synapses grows to 15,000 synapses per neuron by the time a child is 2–3 years old.
- Think of this stimulation as rain, nutrients, sunshine – all needed for a garden to grow
- Consistent amplification wear, meaningful communication, experiences grow the brain



Hearing loss is a drought – limited auditory stimulation = little growth!



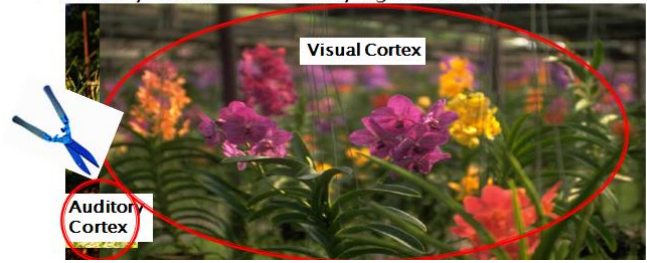
Brain Development – why hearing aids can't wait

- Consider the auditory and visual cortex as neighboring gardens in the same yard.
- The stimulation will drive the growth of the neurons and synapses
- Without constant stimulation, the auditory cortex is minimized and visual cortex enhanced.



Brain Development – why hearing aids can't wait

- At age 2–3 “synaptic pruning” starts to happen. The weaker synaptic contacts are eliminated while stronger connections are kept and strengthened.
- A baby's experiences determine which connections in the brain will be strengthened and which will be pruned away. Ineffective, unused or weak connections are “pruned” away.
- Sensory cortex matures by age 6. Our ‘window’



Our ears work 24/7. If your baby wears hearing aids only 4 hours each day, it will take 6 years to give him as much listening experience as a normally hearing infant accumulates in one year.