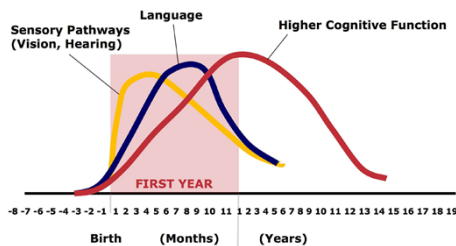


Consistent Auditory Input – Step 1 for Growing Your Child's Brain

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.

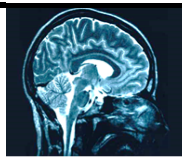
Human Brain Development
Neural Connections for Different Functions Develop Sequentially



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

Brain Development – why hearing aids can't wait

- ▶ At birth, each neuron in the brain has approximately 2,500 synapses, or connections.
- ▶ As a result of constant sensory stimulation and experiences with the world, the number of synapses grows to 15,000 synapses per neuron by the time an infant is 2–3 years old.
- ▶ This amount is about twice that of the average adult brain!
- ▶ Then something called “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.



Brain access tools

- ▶ The best predictors of verbal language skill development are the child's age when full time hearing aid use started, the degree of the child's hearing loss and the amount of his/her exposure to meaningful listening experiences.
- ▶ Using technology, hearing ability must be provided as close to the typical hearing level as possible if the family wants the child to learn to listen and use spoken language.

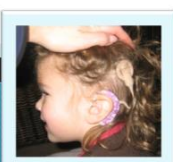
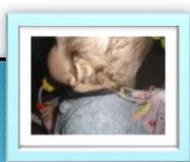
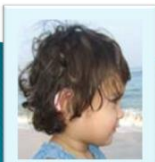


But he's Deaf, why use hearing aids?

- ▶ Families may choose to implant their child at a later date. It is a big decision and some families wait before they come to a decision that is right for them and their child.
- ▶ Even if a child has not shown any auditory response, encourage full-time use of appropriate amplification.
- ▶ Even if there is the slightest auditory stimulation it will keep the auditory pathway open in preparation for a cochlear implant.
- ▶ Compare this practice to preventing the pipes from freezing in winter by keeping the water dripping

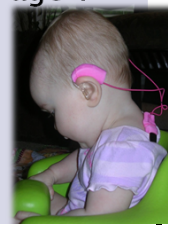
We know..

For most children, the single most effective means to address learning and development issues associated with hearing loss is through the consistent use of hearing technology (hearing aids, cochlear implants, BAHA, FM)



First step to auditory brain access

- ▶ **Hearing aid wear for ALL waking hours**
- ▶ Provides consistent auditory input
- ▶ ‘Hearing the child (and family) can count on’
- ▶ ‘Bond’ with the hearing aids by age 1
- Concerns about loss, damage CAN be addressed
- ▶ Ear Gear – ‘mitten strings’
- ▶ Headbands, clips, tape, hats



By Karen L. Anderson, PhD, 2013. *Supporting Success for Children with Hearing Loss*. <https://successforkidswithhearingloss.com>
For more on Brain Development & Hearing Loss go to <http://successforkidswithhearingloss.com/resources-for-parents-of-children-with-hearing-loss/infants-and-toddlers-with-hearing-loss/ready-or-not-your-child-has-a-hearing-loss-explaining-the-urgency>