

Early Intervention Services for Children Who Are Deaf or Hard of Hearing

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- A coordinated and comprehensive system of programs, services, and resources
- Designed to meet the physical, intellectual, language, speech, social and emotional needs of children from birth to three years who have a developmental delay or are at risk for developing a delay.

The First Step: Newborn Hearing Screening

- Screened by 1 month
- Diagnosed by 3 months
- Intervention by 6 months

Hearing Impairment Impacts

- Speech & Language Development
- Communication Skills
- Cognitive Development
- Social Emotional Development

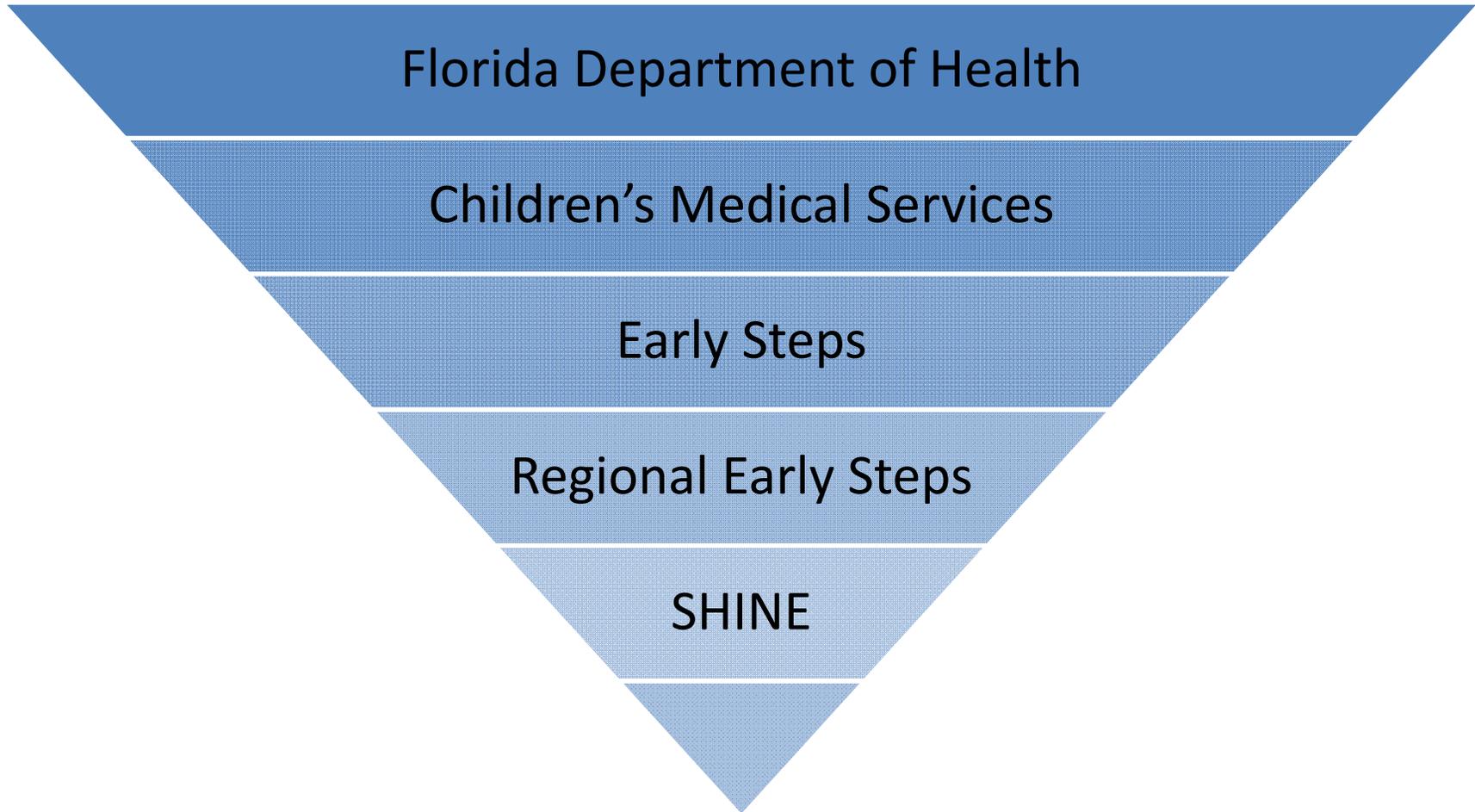
Best Practice

- Infant Hearing Screening
- Early Identification
- Early Intervention
- Family Involvement
- Professional Standards
- Family Choice

Where Does Early Intervention Take Place?

- Natural environment
- Clinic
- School

Early Steps



Serving Hearing Impaired Newborns Effectively (SHINE)

- Individualized Family Support
- Family Education
- Natural Environment
- Resources

Foundation Philosophies of SHINE

- Parents of children recently diagnosed require emotional support and information about hearing loss.
- Parents need unbiased information about communication options.
- Active family involvement can enable language development at a typical rate.

SHINE Goals

- Family education of impact of hearing impairment.
- Knowledge of auditory skill development
- Knowledge of strategies to provide communication access.
- Monitor development of communication skills.

Goals of Early Intervention

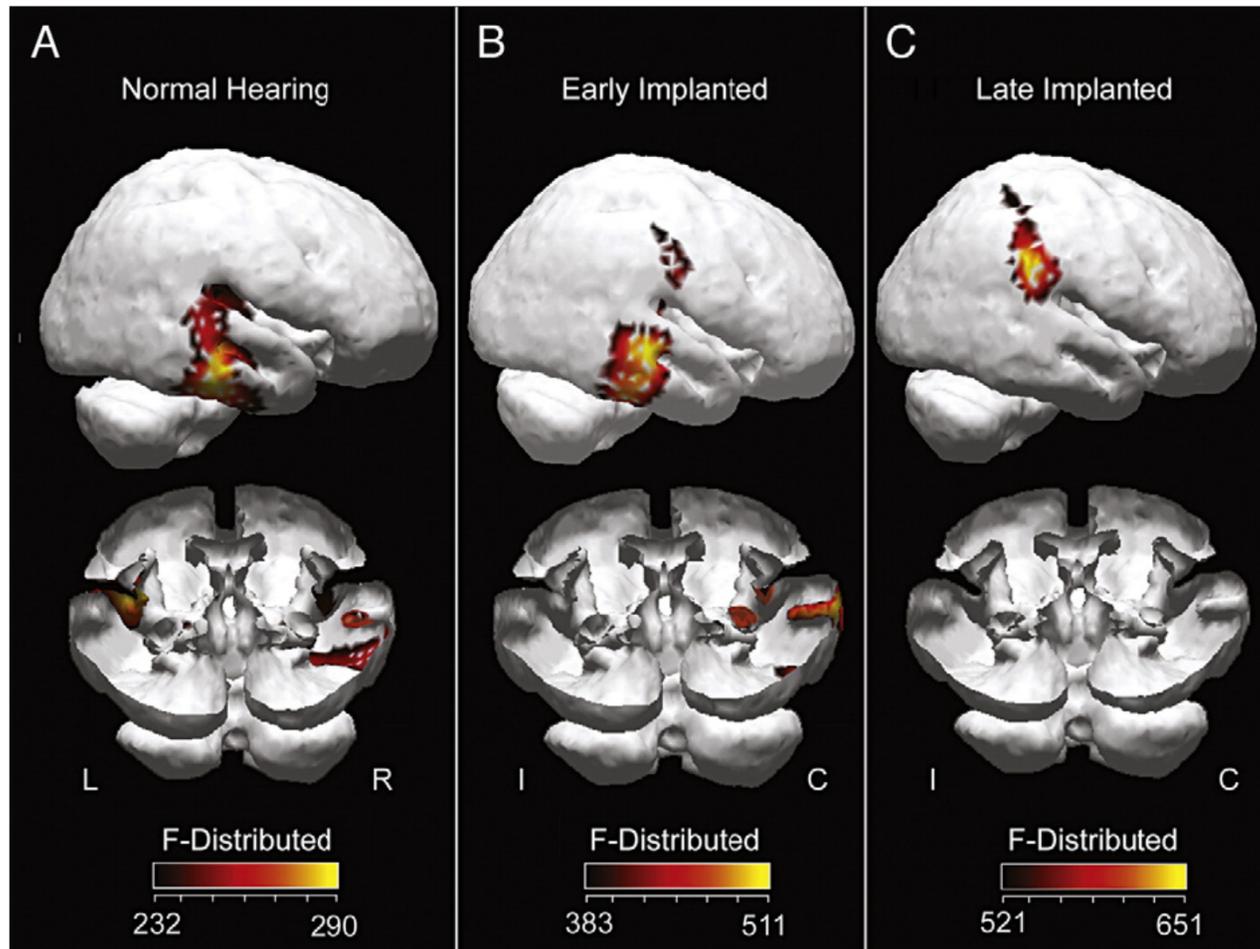
- Receptive language
- Expressive language
- Auditory perception
- Speech development

Central Auditory Development

- Central auditory system is highly plastic during the first 3.5 years of life.
- After 7 years of age without auditory input MRI studies have shown that the auditory cortex of the brain is re-organized.
- MRI studies indicate that the auditory cortex shows minimal auditory reception after seven years of age.

Anu Sharma (2002)

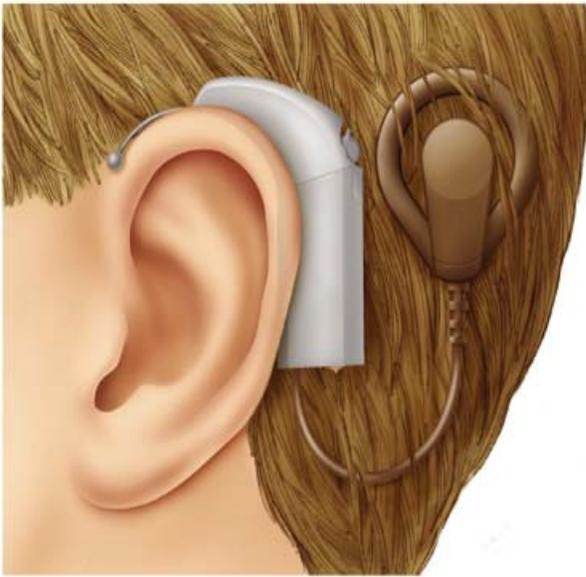
Cortical Auditory Evoked Potentials



Auditory Access

- Hearing aids
- Cochlear implants
- Baha
- FM systems

Cochlear Implants

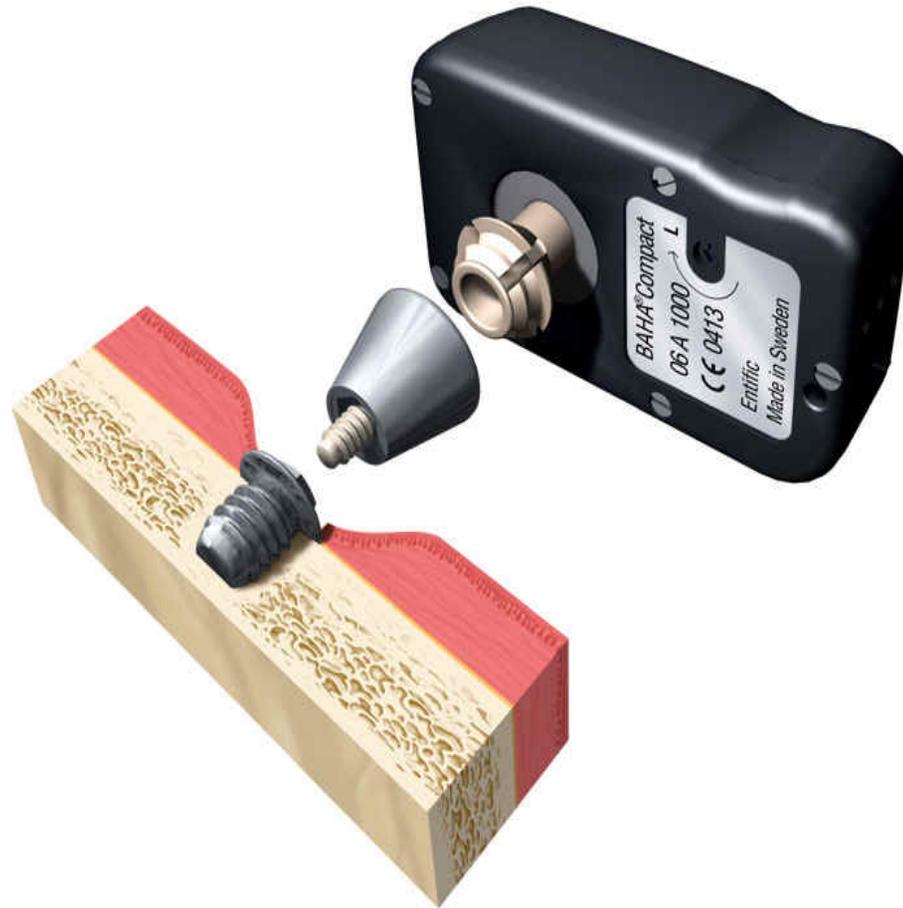


- Useful when hearing aids are not effective
- Surgical procedure
- Send electrical signals directly to auditory nerve

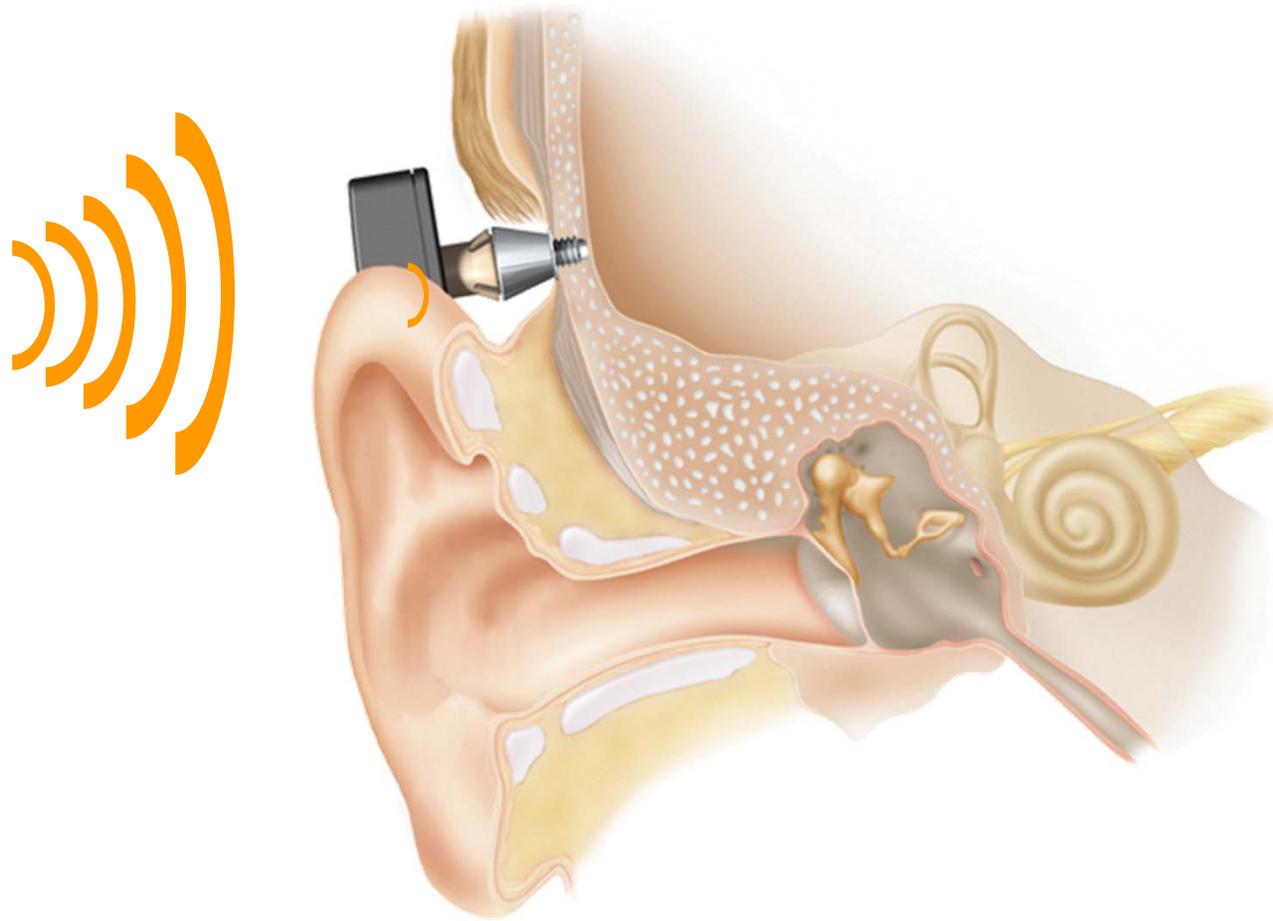
Baha Implantable Bone Conduction Hearing Aid



Baha Bone Conduction Aid



How the Baha implant works



Hear now. And always



Cochlear™

Auditory/Linguistic Learning

- Child becomes more aware of sound.
- Connects sound with meaning.
- Understands more complex language
 - In quiet circumstances
 - In a variety of more difficult listening conditions.

Elizabeth B. Cole and Carol Flexer, 2007

“We don’t have ear lids”

Carol Flexer, 2010

Trust the Hearing

- Check technology
- Use listening

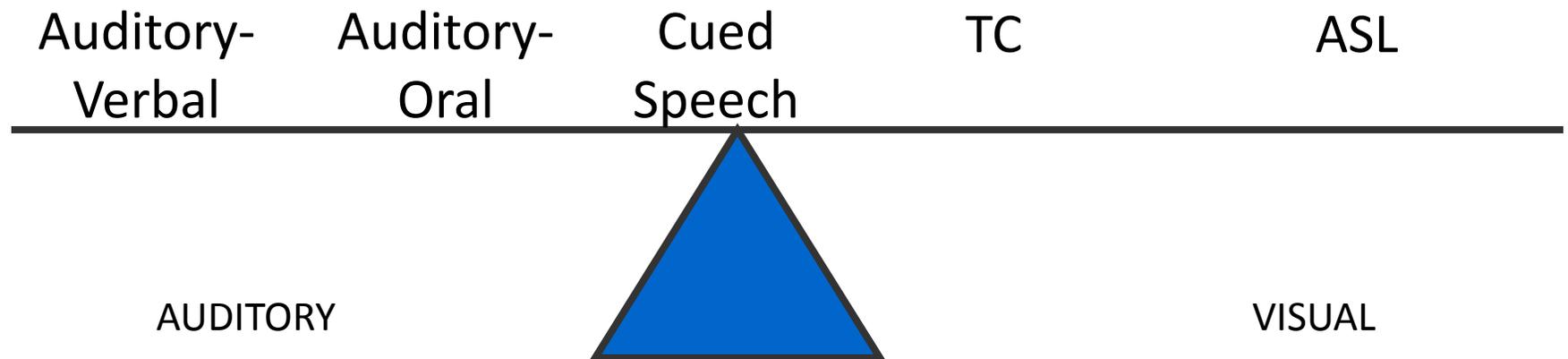
Levels of Auditory Skills

- Detection
- Discrimination
- Recognition/Identification
- Comprehension

Communication

- Unbiased information
- Choices
- Strong emotions tied to language

Continuum of Communication Modality



American Sign Language

- Visual language
- Has it's own vocabulary and grammar
- Distinct from any spoken language

Bilingual/Bicultural

- ASL is first language
- English or family's native language is second language
- Focus is on the written form of the second language.

Total Communication

- Combination of communication options
- Oral and manual
- Use of Manually Coded English, ASL, Cued Speech
- Use of auditory technology

Cued Speech

- Visual code based on the sounds used within words
- Hand-shapes visually represent speech sounds
- Tool for speech reading spoken languages
- Not a separate language

Auditory-Oral

- Maximum use of technology for auditory access
- Focus on listening and spoken language

Auditory Verbal

- One aspect of auditory-oral
- Focus on development of listening skills
- Reliance on hearing alone during specific teaching times
- Parent training and participation highlighted
- Certification process as a Listening and Spoken Language Specialist

Choice

- Families must have unbiased information
- Must have choice
- Can mix and match approaches

SKI-HI Curriculum

- Curriculum for family centered programming for infants and young children with hearing loss.
- Topics with visuals, handouts, and activity sheets.
- Six day training program

Language Development

- Requires consistent exposure
- Need fluent models
- Need visual and/or auditory access

Intervention Strategies Not Modality Specific

- Caregiver Strategies
- Interventionist Strategies

Caregivers

- Bath child in language
- Scripts for daily routines
- Read to their child
- Control auditory environment

Therapist

- Assess baseline skills.
- Establish short and long term therapy objectives.
- Provide activities that will elicit targets.
- Monitor progress.

Providing Talking Opportunities

- Sabotage
- Incomplete tasks
- Ridiculous actions
- Wait time

Sabotage

- Containers that cannot be opened without help.
- Toys that are too high to reach.
- Toys that don't turn on.

Incomplete tasks

- Provide just a few pieces of a food item.
- Offer part of a toy.
- Give the paint but not the paintbrush.

Ridiculous actions

- Pour the milk with the cap on.
- Put pants on a doll's head.

Wait Time

- Allows time for spontaneous production.
- Allows child to process information.
- Puts responsibility for conversation on child.

Monitoring Progress

- Auditory Skills
- Language Skills

Infant-Toddler: Meaningful Auditory Integration Scale (IT-MAIS)

- Modified version of the MAIS
- Parent or teacher report scale
- Assesses auditory behaviors of infants and toddlers in their natural environment
- Standardized interview technique

S. Zimmerman-Phillips, M.J. Osberger, A.M. Robbins

IT-MAIS

- Is the child's behavior affected by wearing the sensory aid?
- Does the child spontaneously respond to name in background noise with only auditory cues?
- Does the child know the difference between speech and non-speech stimuli with listening alone?

Early Speech Perception Test

ESPT

- Category 1: No Pattern Perception
- Category 2: Pattern Perception
- Category 3: Some Word Identification
- Category 4: Consistent Word Identification

Jean S. Moog and Ann E. Geers, 1990

Language Assessments

- SKI-HI Language Development Scale
- Preschool Language Scale
- Receptive-Expressive Emergent Language Scale-3

Listening Room

- Advanced Bionics has developed this wonderful website with many activities for students of all ages.

www.hearingjourney.com

Click on

“Listening Room”

Select Age Group

The Many Strands that are Woven into Skilled Reading

(Scarborough, 2001)

LANGUAGE COMPREHENSION

BACKGROUND KNOWLEDGE

VOCABULARY KNOWLEDGE

LANGUAGE STRUCTURES

VERBAL REASONING

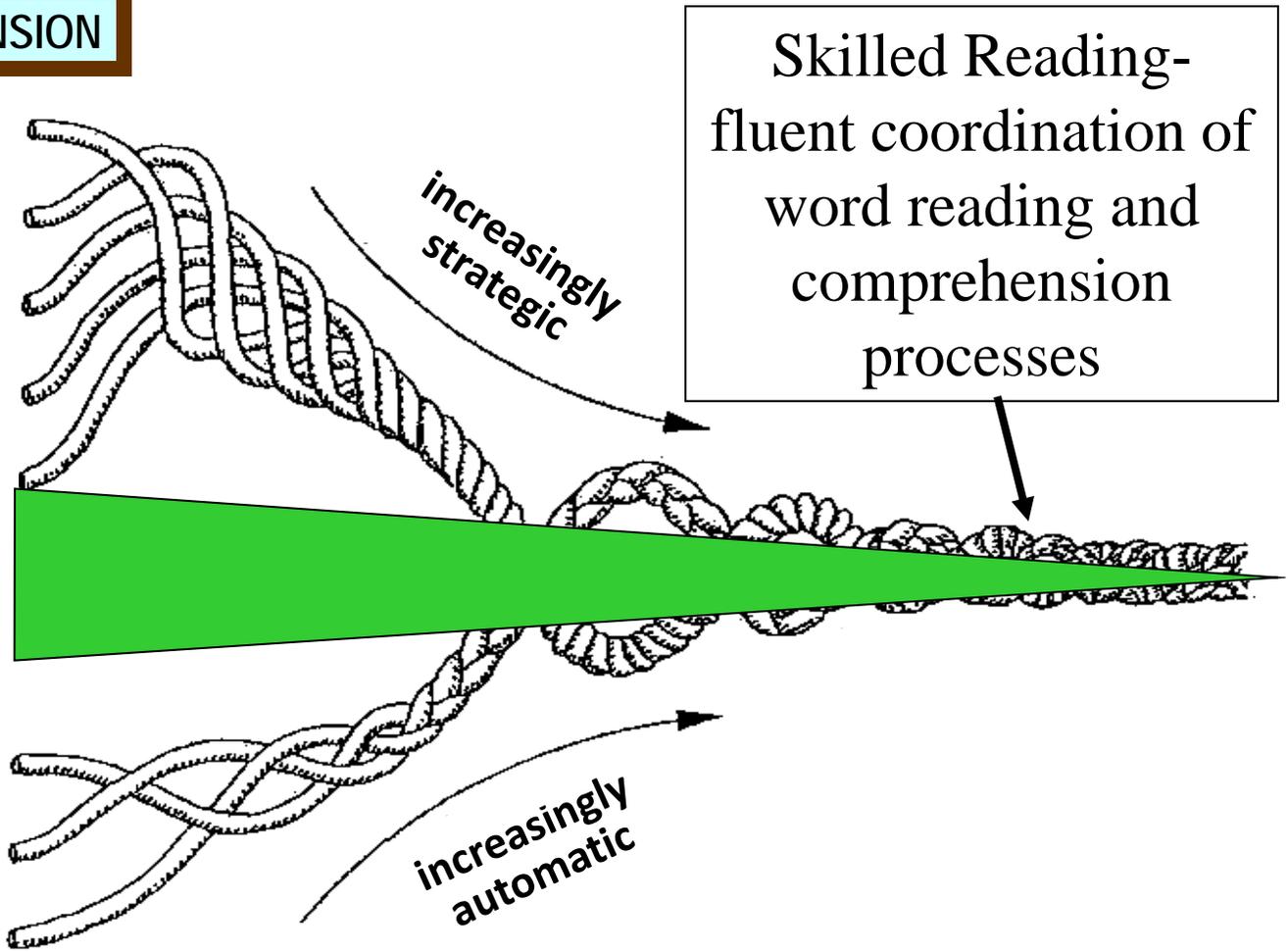
LITERACY KNOWLEDGE

WORD RECOGNITION

PHON. AWARENESS

DECODING (and SPELLING)

SIGHT RECOGNITION

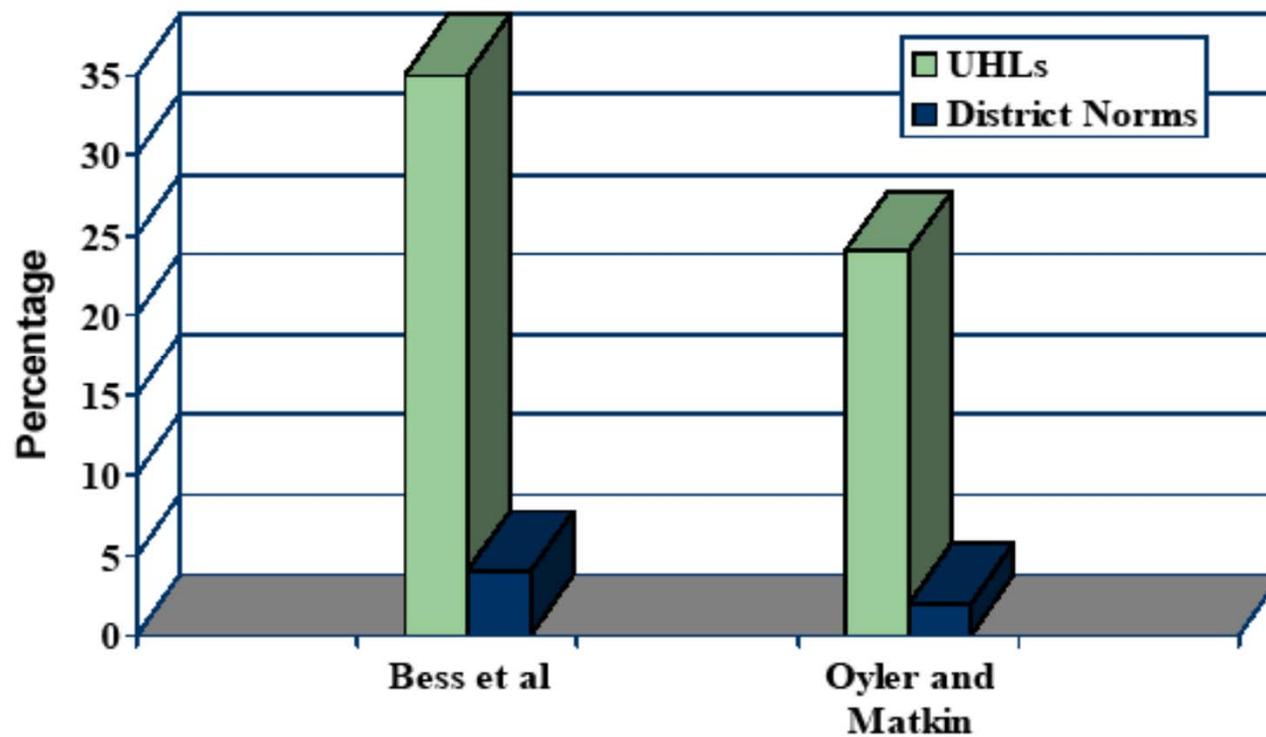


Reading is a multifaceted skill, gradually acquired over years of instruction and practice.

A Word About Unilateral Hearing Impairment

- 22%-35% repeat a grade
- 13% need some special resource assistance
- 20% described as having behavior issues

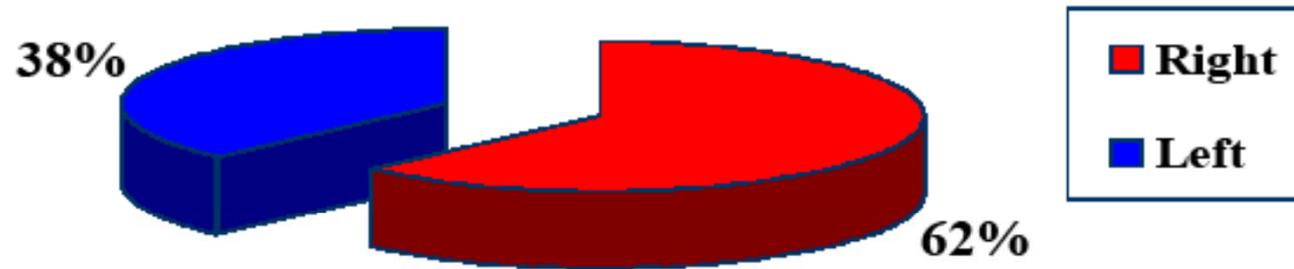
Percent Failing at Least One Grade



STUDIES ON UNILATERAL HEARING LOSS

Investigation	Failed (1 or more grades)	Resource Help (1 or more years)	Combined (failed and/or resource help)
Bess (1986)	35%	13.3	48.3%
Oyler (1987)	27.3%	40.7	68.0%
Jensen (1988)	18.0%	36.0%	54.0%
Martini (1988)	25.0%	?	?

Failure as a Function of Ear



Bess & Tharpe, 1986

Questions