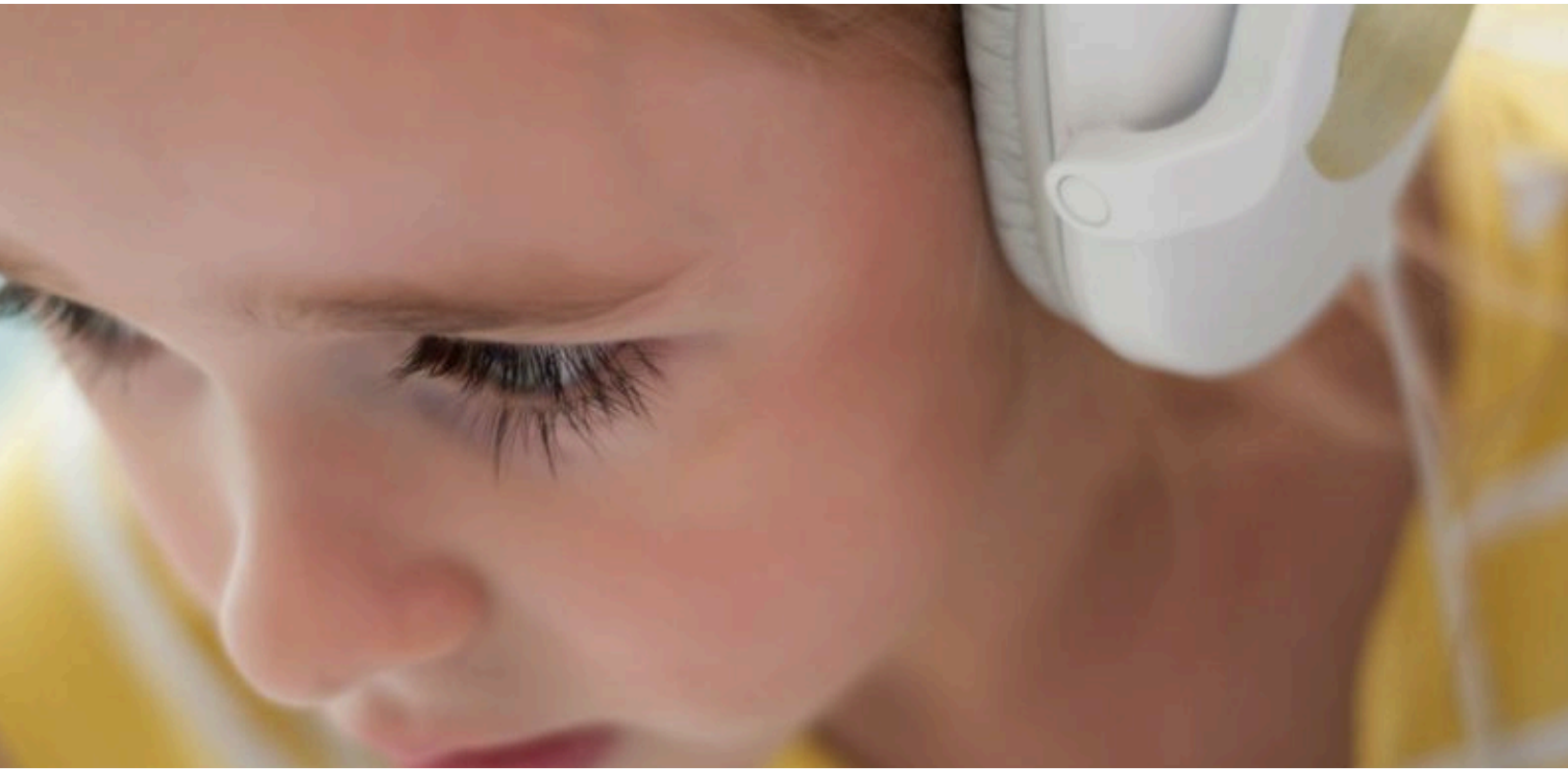
QUICK GUIDE

February 2018

STRATEGIES FOR CORTICAL AUDITORY IMPAIRMENT AFTER HEMISPHERECTOMY



OVERVIEW

It is anatomically impossible for a child to have completely normal auditory processing skills after hemispherectomy surgery; however, the extent of the cortical auditory impairment will vary from child to child. There are many management options to address Central Auditory Processing Disorder. These can include therapeutic and environmental interventions and compensatory strategies to help the child to be as successful as possible, many of which may be helpful after hemispherectomy.

EVALUATIONS

The child should undergo various evaluations and assessments for cortical auditory impairment by trained audiologists and professionals. These include:

- Functional Listening Evaluation;
- Hearing Assistive Technology Assessment;
- and the sound levels in the child's learning environment should be measured.

THERAPY AND SPECIALIZED INSTRUCTION

Various therapies and specialized instruction methods should be used to help the child access information presented auditorily. These include:

- Reading instruction: one-on-one or small group instruction in reading skills, targeting any areas of weakness; reading aloud; pre-teaching new concepts and vocabulary; listening to audiobooks in conjunction with visual assignments. The child may require a phonics-based reading program to assist with difficulties with phonemic decoding. A detailed reading assessment from a certified reading specialist can help the team understand specific reading deficits and tailor a program to the child strengths and deficits.
- Intensive speech and language therapy: one-on-one training with a speech therapist to provide exercises and training to build kids' ability to identify sounds and develop conversational and listening skills; i.e. phonological awareness and discrimination training (including speech-to-print skills); auditory closure activities; prosody training (including rhythm and stress perception); speechreading.
- Therapy to work on sound localization and sound lateralization. This may be performed by an auditory therapist, a speech-language pathologist who works with auditory complaints, or an occupational therapist who specializes in sensory integration dysfunction techniques related to auditory complaints;
- Occupational therapy to work on developing skills that will allow the child to combine auditory and visual information and to work on desensitization strategies when needed.

COMPENSATORY STRATEGIES

Compensatory strategies are designed to assist individuals with techniques that they can apply to help overcome some of the daily struggles that they may face. For example, a child may need to "chunk" important information together to understand the message being conveyed.

Usually, compensatory strategies consist of suggestions for assisting listeners in strengthening central resources (language, problem-solving, memory, attention, other cognitive skills) so that they can be used to help overcome the auditory disorder. In addition, many compensatory strategy approaches teach children with CAPD to take responsibility for their own listening success or failure and to be an active participant in daily listening activities through a variety of active listening and problem-solving techniques.

ENVIRONMENTAL MODIFICATIONS

Certain environmental modifications can be made to improve access to information presented auditorily. They include:

- Use of large-group or individual FM systems to maximize the signal-to-noise ratio;
- Provide preferential/strategic seating (toward speech source and away from noise sources, such as large windows, playground, construction noise, HVAC units, pencil sharpeners, etc.);
- Reduce competing speech and distracting background noise;
- Reduce ambient reverberation in the room with sound-absorbing materials (carpet on floor, stoppers on chair legs, curtains on windows, corkboard bulletin boards on walls, etc.);
- Avoid open classrooms or multiple-use community rooms (which may increase ambient noise and unwanted visual distractions). Instead, instruction should be provided in contained rooms with permanent wall structures that reach to the ceiling, and closed doors;
- Improve lighting to maximize visual cues;
- Minimize visual distractions or use a study carrel.

ACCOMMODATIONS

Various accommodations should be made to improve the child's access to auditorily presented information. These include:

School-based strategies

- Small group instruction- Due to the complexities of listening environments, a smaller group instructional setting of approximately 6 children or less is recommended. For children with significantly higher executive function deficits as well as listening and language deficits, one-on-one intervention may be needed for more language based- and computationally- driven subjects;
- Pre-teach new information, particularly new subject vocabulary;
- Provide written outlines or study notes/study guide before a lecture;
- Multimodal presentation of instructions and new subject matter, i.e. visual reinforcers, visual aids, and written instructions to augment the verbal where applicable; explain verbally while showing visually;
- Allow use of a recorder for meetings or lectures;
- Auditory cueing, which is gaining the child's attention by calling his/her name, using a previously assigned visual cue, or gently tapping the child on the shoulder before addressing him/her;
- Assign a visual cue to signal the teacher when the child needs repetition of instructions;
- Frequent checks for understanding of verbal information which may include asking the child to paraphrase or repeat instructions;
- Break up complicated or multi-step directions into smaller steps. This technique is called "chunking"; instructions should be short, simple and repeated if necessary;
- Alter assignments to minimize the area of weakness;
- Rephrase or repeat misunderstood information;
- Allow extra response time for oral testing and any activities with verbal instructions;
- Use metacognitive techniques designed to strengthen memory and aid in recall (such as verbal rehearsal, tag words, and organizational aids);
- Use of audiobooks (to augment any visual reading assignments to increase reading comprehension, and to exercise listening skills and auditory memory);

- Reduce rate of speaking: the understanding of verbal information for the average child is approximately 124 words a minute. Given that the average adult speaks using over 200 words a minute, a child often needs a slower rate of speech, deliberate pauses, and a clear voice. Reduce the instructional information to smaller units and present with a slower rate of speech to increase the child's ability to effectively listen to and follow verbal instruction; faster rates of speech may cause more difficulty for the child to accurately follow new instructions and unfamiliar topics;
- Develop and maintain routines and use consistent vocabulary and formats;
- Allow the child to have several breaks between class so that he/she has a recovery period during the day. In most cases, breaks of 5 minutes of quiet activity are recommended for 15-20 minutes of sustained attention to instruction but may need to be adjusted based on the individual child's needs and abilities;
- Encourage the child to self-advocate; for example, they can request a quiet environment in which to work or take a break if feeling overwhelmed;
- Avoid more complex auditory tasks when the child is already fatigued.

Home-based strategies

- Play games that assist in further development of overall language and vocabulary use, such as: Scattergories, Taboo, Apples to Apples, Brain Quest, Password, Jeopardy, Knock Knock Jokes, Rags to Riches, Mad Libs;
- Encourage active participation in games that develop the ability to think several steps ahead, such as chess, backgammon, checkers, and Blokus;
- Use electronic games such as Splingo's Language Universe to develop skills in working on multiple step instructions; other language and educational games can be found at www.superduperinc.com;
- Use memory games and exercises such as Bop It or Simon, the card game Concentration, video games like Brain Age and Mind Games, and online resources targeted toward developing working memory (e.g. junglememory.com);
- Incorporate checklists and schedules in daily tasks to assist with organization and memory skills;
- Read aloud daily for 40 minutes with special emphasis on animation to increase reading aptitude, to reinforce the use of rhythm, stress, and intonation in expressive language, and to strengthen overall comprehension as well as increase auditory memory skills.

THE brainrecoveryproject
CHILDHOOD EPILEPSY SURGERY FOUNDATION

The Brain Recovery Project: Childhood Epilepsy Surgery Foundation

969 Colorado Blvd., Suite 101

Los Angeles, California 90041

Phone: 626-225-2841

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Email: info@brainrecoveryproject.org