

## **Auditory Processing Disorders**

Michigan Special Education Codes does not provide a definition of Auditory Processing Disorders (APD). It is not an eligibility area for Special Education in Michigan.

### **DEFINITION**

The definition of APD provided by the Central Auditory Processing Disorders Ad Hoc Committee of the American Speech-Language Hearing Association (ASHA 1995) is an observed deficiency in one or more of the following behaviors:

- Sound Localization and lateralization
- Auditory discrimination
- Auditory pattern recognition
- Temporal aspects of audition, including temporal resolution, temporal masking, temporal integration, temporal ordering
- Auditory performance decrements with competing acoustic signals
- Auditory performance decrements with degraded acoustic signals

These behaviors have neurophysiological, as well as behavioral correlates.

### **Working Definition**

Auditory processing is what is done with what is heard. An auditory processing disorder implies that one cannot do what is expected with the auditory information received. The above neurophysiological behaviors provide a foundation for language learning. When the auditory system is unable to make proper use of stimuli, typical language development can be effected and difficulties can be manifested in many ways.

### **The Processing Continuum**

Gail Richard (2001) states

“...processing is moving back and forth between auditory features of the signal and language features of meaning. In other words, processing occurs on a continuum beginning at a level of pure auditory processing, transitions to a mix of both auditory and language processing, and ultimately ends in pure language processing”.

Therefore, it seems probable that if a student has any type of cognitive or language process disorder, there will be some sort of deficit at the auditory processing level. However, this should not imply that every child with a language disorder has an auditory processing problem or that there is a need for auditory interventions.

### **Factors That Affect Listening**

Listening and auditory processing do not occur in isolation from other areas of development. Assessment should consider these factors which may effect listening and auditory processing.

*Developmental Age of the Student*

Listening skills are similar to other skills. Developmentally, younger students have less mature listening skills than older students. Research indicates that listening and auditory processing skills are often not fully developed until 11 years of age.

*Hearing*

Students with any degree of hearing loss process information differently. It is important to know the status of the student's hearing.

*Cognitive Ability*

Listening, auditory processing and other language related tasks are affected by cognitive ability.

*Language Competence*

Bilingual/ESL students may not have a strong enough command of English to quickly and efficiently process classroom information.

*Other Factors*

Attention, distractibility, motivation, and emotional status can affect a student's ability to listen and process.

**Characteristics of Auditory Processing Disorders**

Below is an adapted list of common characteristics for students with APD:

- History of otitis media
- Behavioral problems in school
- Problems with reading and writing
- Possible mild speech and language issues
- Poor attention span
- Poor listening behaviors; does not demonstrate active listening behaviors
- Poor short and long term memory
- Difficulty following oral directions, especially in noise
- Repeated requests for speaker to repeat themselves

**SLP ROLE IN AUDITORY PROCESSING DISORDERS**

Since APD is not a special education eligibility category, a student is unable to qualify for special education services for APD alone. Often, the suggestion that a student might have APD originates from a source outside the school environment such as a parent, physician or other medical professionals. When this occurs, an SLP is typically asked to address any such issues related to auditory processing and academic functioning. The following list contains some of the roles an SLP would have regarding APD:

- Education of parents and school staff regarding APD and special education certification
- Responding to requests to investigate APD
- Comprehension of the role APD may play in other language or cognitive process disorders

## **INITIAL RESPONSE TO STUDENTS SUSPECTED OF APD**

When a child is referred to the SLP for an auditory processing disorder, the SLP may choose to follow their school district's child study team policies. Documentation of the SLPs initial investigations should take place. Most of the activities are similar to any child brought for pre-referral to the child study team with a few exceptions. These activities include:

- Gather input (parent, teacher, student)
- File review
- Consider any cultural or linguistic differences
- Consider any environmental or economic differences
- Classroom observation(s)
- Hearing screening
- Brief speech and language assessment (CBLA, dynamic assessment, screenings)

### **Gather Input**

Interviews with parents and teachers can often provide valuable information about the difficulties the student may have in the classroom. Interview questions should focus on the characteristics of APD previously listed in addition to other pertinent academic and/or social behaviors.

### **File Review**

A review of pertinent information in the student's school file may provide valuable information as to the history of the student's academic or behavioral difficulties. Comments from previous report cards may provide the SLP information about the student's auditory and language processing.

### **Cultural and Linguistic Differences**

Although APD is not a special education eligibility category and therefore does not require the SLP to consider cultural and linguistic differences, it is still an important facet of any child study investigation. The SLP should examine the relationship between the student's dialect, language, and/or culture and how it impacts their learning, if indicated.

### **Economic and Environmental Differences**

A student's environmental or economic differences may be the root of the child's educational difficulties. The SLP should provide documentation from team reports, teacher, and parent reviews in consideration of these factors, if indicated.

### **Classroom Observations**

It is important to observe a student in the classroom to view how well the student is able to function and listen in the academic climate. The SLP should specifically target their observation with regard to the Factors that Affect Listening previously discussed in this section. See APD-? for examples of classroom observation checklists which may prove useful.

### **Hearing Screening**

A hearing screening is a key component of the SLPs investigation of an auditory processing disorder. Students must exhibit normal peripheral hearing at a basic level because APD involve

a disconnect of acoustic information neurologically at the brainstem or initial cortical level (Richard, 2001).

### **Brief Speech and Language Assessments**

At this point in the SLPs investigation of APD it is not necessary to complete a full battery of tests which examine the student's language processing. However, the SLP should complete some measure of receptive and expressive functioning through Curriculum-based Language Assessments (CBLA), dynamic assessments (DA), or brief screenings. For further information about these types of assessment please see the Language section of this document. A common screening assessment used for APD is the Screening Instrument for Targeting Educational Risk (S.I.F.T.E.R.) created by Karen Anderson (Anderson, 1989).

### **Results of Initial Investigation**

Once the initial information has been gathered and analyzed, the SLP should discuss the results with the school's special education team, parents, and teachers. The SLP should begin educating all relevant members about auditory processing disorder and their initial findings. If the SLP is unable to demonstrate concomitant language or academic difficulties related to a special education eligibility area, then no further steps can be made. However, the SLP may choose to provide the teacher(s) and parent with accommodations and/or modifications for school and home. If the SLP and team feel there are other concerns related to language or academics which became evident during the initial investigation, it is recommended that the SLP and team follow the suggested guidelines for prevention and early intervening in the Language or Related Service sections of this document.

## **ASSESSMENT CONSIDERATIONS**

Formal assessment should only take place once the SLP and special education team have completed the early intervening process for another eligibility category and determined that a formal referral for special education services is warranted. Since APD is not a special education eligibility area, any formal assessment of auditory processing should be done simultaneously with a formal assessment of language as it relates to other eligibility categories. The discussions below are meant to be a description of the additional procedures required if exploring a possible auditory processing issue.

### **Multidisciplinary Team**

Since auditory processing disorders occur along a continuum, it is important to use a multidisciplinary approach to look holistically at the way a student listens and interprets an acoustic signal. Members of this multidisciplinary team should include a speech and language pathologist and audiologist. An audiologist is an important member of the team as they will be responsible for assessing the central auditory processing piece. Other members may include a psychologist, building administrator, social worker, other professionals providing direct education services, parent and classroom teacher.

### **Exclusionary Criteria for Assessing APD**

In order to assess for APD, a student should first demonstrate the following:

- Normal peripheral hearing
- Adequate language acquisition and form, content, and use

- Normal cognitive functioning

The above areas can be termed a “peripheral auditory assessment” and are necessary so that the student is able to comprehend the types of assessments given for an auditory processing disorder (Richard, 2001).

### **Language Processing Assessment Considerations**

As was previously discussed, auditory processing exists along a continuum with pure auditory processing at one end and pure language processing at the other. Comprehending this concept taken together with the knowledge about common characteristics in students with APD, it is suggested that the SLP and/or team choose assessments which focus on memory, word retrieval, receptive/expressive language, problem solving and listening comprehension.

### **Results/Recommendations**

When it has been determined that a disability is present which adversely effects educational performance, eligibility for special education services should be considered by the IEP team. . Auditory processing difficulties can be associated and co-exist with other disorders, such as Language Impairment, Autism, Learning Disability, Cognitive Impairment, Attention Deficit Disorder, or Emotional Disorders. The SLP and team must analyze the data together and determine if there might be evidence of an associated auditory processing disorder. These characteristics may be documented in the SLPs report.

## **STRATEGIES FOR AUDITORY PROCESSING DISORDER**

Several strategies exist which may positively impact a student in their educational environment. These strategies are divided into parent, teacher, and student approaches. The team may choose to utilize these strategies during an early intervening, assessment or intervention stage.

### **Teacher Modification Strategies**

#### *Classroom environment*

- Reduction of noise/minimize distractions
- Preferential seating away from noise
- Use of classroom amplification system

#### *Teaching techniques*

- Clear enunciation at a slow-moderate rate of speech
- Insert purposeful pauses between concept
- Shortened verbal instructions; only pertinent content
- Provide visual cues during lecture and/or oral directions
- Provide repetition of oral information and steps of assignment
- Give breaks between intense concepts taught for comprehension
- Check for comprehension early and often
- Have student repeat directions to the teacher
- Preview and review concepts for lecture

#### *Peer assistance*

- Use of a positive peer partner for comprehension of directions
- Use of cooperative learning groups
- Use of a note-taker

#### *Assignment modifications*

- Allow extended time to complete assignments and/or tests
- Provide visual instructions
- Preview language of concept prior to assignment
- Frequent checks for comprehension at pre-determined points
- Vary grading techniques

### **Student Modification Strategies**

- Teach use of visual cues to supplement auditory information
- Teach use of short and long term memory techniques (i.e. rehearsal, chunking, mnemonics, visual imagery)
- Teach student to listen for meaning rather than every word
- Teach active listening behaviors
- Teach student to advocate for themselves by asking frequent questions about the material, asking for multiple repetitions or requesting speaker to “write it down”
- Use of tape recorder for assignments
- Teach organizational strategies for learning information

### **Parent Modification Strategies**

- Keep directions or commands short and simple
- Use praise often and be positive
- Use visuals or gestures at home to compensate for listening difficulties
- Assist the student in asking clarification questions and being their own advocate
- Preview and review classroom material
- Review tape recorded information with the student

Other specific skill strategies which focus on auditory remediation exist in the literature in auditory processing disorders. However, the school-based speech-language pathologist may not necessarily speak to these acoustic skill strategies without a direct IEP goal which addresses an area of the student’s educational deficits. Since IEP goals are derived from a comprehensive assessment and eligibility in other special education certifications as well as direct effect on educational performance, the team may not work with specific auditory skill remediation in isolation. For further information about acoustic skill remediation please refer to the References portion of this section.

## **REFERENCES**

Anderson, K. (1989). *Screening Instrument for Targeting Educational Risk (S.I.F.T.E.R.)*. Tampa, FLA: The Educational Audiology Association.

Richard, G.J. (2001). *The Source for Processing Disorders*. East Moline, IL: Linguisystems, inc.

Need to complete references for Fisher Checklist and CHAPS checklist