Auditory Processing Disorders vs. Language Processing Disorders

Characteristics of (Central) Auditory Processing Disorders

- majority of children with APD are male (75%)
- pure tone hearing results are normal
- inconsistent response to auditory stimuli and difficulty following oral directions
- short auditory attention span
- give the impression of not listening even though they are looking at the speaker
- difficulty localizing sound
- difficulty listening in the presence of background noise
- academic difficulties (phonics, reading, spelling) and may have mild speech/language impairments
- behavior may be disruptive-distracted, frustrated, and impulsive
- history of otitis media
- requests verbal repetition or may often say “huh”
- listens better with visual information
- need more time to process information
- trouble with carrying out multi-step directions given orally
- fewer words may be perceived than were said, as there can be problems detecting the gaps between words, creating the sense that someone is speaking unfamiliar or nonsense words
- difficulty perceiving differences between speech sounds and the sequencing of these sounds into meaningful words, confusing similar sounds such as 'hat' with 'bat', and 'there' with 'where'

Characteristics of Language Processing Disorders

- retrieval problems with common words
- use of neutral, generic, or less-specific labels
- words may be misused with a similar phonetic structure
- use of fillers to buy time (response latency)
- frequent response of “I don’t know” or I forgot’
- need for verbal repetition or rehearsal
- may generate creative or original language terms /use of descriptions or circumlocutions
- need extensive review of previously learning material; inconsistency in learning
- recognize language errors but do not know how to “fix” or change them
- incomplete thoughts or sentences
- problems with social skills’ disruptive behavior
- age-commensurate ability and vocabulary with academic deficits; may have a learning disability label
- often have the language skills to comprehend but require additional time to determine meaning
- problems linking of words both written/spoken to semantics (the child may struggle to access the meaning to both verbal language and its visual notation, the written word, and require non-verbal help to match their stronger learning styles and skill

CENTRAL AUDITORY PROCESSING DISORDER

General Definition

Auditory processing disorder is a congenital as well as an acquired condition (for example; resulting from ear infections and head injuries) which refers to difficulties in the processing of auditory information within the central nervous system, such as problems with: "...sound localization and lateralization; auditory discrimination; auditory pattern recognition; temporal aspects of audition, including temporal integration, temporal discrimination (e.g., temporal gap detection), temporal ordering, and temporal masking; auditory performance in competing acoustic signals (including dichotic listening); and auditory performance with degraded acoustic signals." (Quote from: (Central) Auditory Processing Disorders, Technical Report, Jan 2005)

This can manifest as problems determining the direction of sounds, difficulty perceiving differences between speech sounds and the sequencing of these sounds into meaningful words, confusing similar sounds such as "hat" with "bat", "there" with "where" etc. Fewer words may be perceived than were actually said, as there can be problems detecting the gaps between words, creating the sense that someone is speaking unfamiliar or nonsense words. There may also be problems relating what has been said with its meaning, despite obvious recognition that a word has been said. Separating speech sounds from background noise such as the sound of a radio or television can be difficult. In areas such as a noisy classroom or gym, it can be difficult to impossible to understand speech, depending on the severity of the (auditory processing) condition. For those with (C)APD, speaking on a telephone can be a problem, due to low quality audio, poor signal, intermittent sounds and the chopping of words, in comparison with someone with normal auditory processing (hearing).

It should be noted that memory issues are not longer part of the definition for this disorder.
Frequently Asked Questions

If I am interested in referring a student for an auditory processing assessment what is the process?

Each office should have a referral package for (C)APD testing. This has recently been updated to streamline the process. Once the family and the school have completed the forms and obtained a copy of the SLP and a psychological report, send the package to the Audiology Department at Richmond Road (fax - 403-943-8501). Remember that the student needs to be at least 7 years of age. If the reports are older than 3 years please contact Charlene Watson at (403)955-8515 to discuss options.

Can a school initiate this service?

Sometimes a school or private psychologist will want a student referred. The school can also follow this same procedure and send the completed package directly to the Audiology Department. They will once again need to have all the referral pages filled out and will require a report from both the psychologist and the SLP. It should be mentioned that the SLP report cannot be copied from the cumulative file. The family will need to copy their personal report to attach or the Audiology Department will have to request it internally.

What tests do I need to administer as a Speech-Language Pathologist?

You are the professional and it is up to you to make the decision as to what evaluation measures you require in order to determine the needs of the student. We have suggested some specific tests that can offer the Audiologist more information. These include a phonological awareness test (or even the sub-test from the CELP-4), an auditory discrimination test and/or the Differential Screening Test for Auditory Processing Disorders. It should be mentioned that recently a couple of students
diagnosed with (C)APD were given the Differential Screening Test and had not passed it.

I refer students in for testing but I have not had one come back with a diagnosis. How often do you find a student with this disorder?

(C)APD occurs in about 2-3% of children, with a 2:1 ratio between boys and girls (of 90 children assessed at the RRDTC in 2009 2 were diagnosed with APD).

Since it is so infrequent should I keep on referring students for testing?

Absolutely, if a child is having difficulty listening/following directions in the classroom, struggling with reading, misunderstanding what is being said, showing greater difficulty listening when the classroom is noisy, in light of normal hearing, cognitive function and language processing then (C)APD testing may need to be ruled in or out. Even if (C)APD testing is normal this provides more information about the child's listening abilities and whether this is a mode teachers can utilize to help the child learn and function in the classroom setting.

What does the audiologist offer to families of students who have been identified?

(C)APD therapy is dependent on the diagnosis. If the child is struggling with temporal resolution skills (timing issues) then a pattern recognition game such as Simon 2 is provided to develop these skills. If the child is experiencing difficulty listening to two things at the same time then dichotic listening therapy is recommended. An example of this would be having the child listen to a book on tape with background noise present. If the child is exhibiting difficulty with basic discrimination, Earobics may be recommended. Once the therapy has been completed (C)APD skills are retested both behaviourally and electrophysiologically to determine if the skills have improved or if therapy should continue. Just recently a boy was reviewed and improved his auditory skills after remediation.
Does the audiologist offer anything to families of students who do not have this disorder?

Yes, typically if children are not diagnosed with APD and exhibit reading, writing, or spelling difficulties, we recommend the Earobics program. This program develops basic discrimination, differentiation, and listening skills which are all important for reading, writing and spelling. We also offer listening strategies that are useful at home and in the classroom.

Why do you not test students with PDD?

These children do not have a normal auditory system. Their auditory processing problems may be due to the autism.

Do you test students that are DHOH (Deaf or Hard of Hearing)?

No we do not test these students since we know that the sounds that they are hearing are not normal. The plasticity of their brains may not be the same as typical hearing students.

Will you test students with a Learning Disability?

There is a higher percentage of students with a learning disability that have (C)APD problems. New research suggests 30-50% of children with learning disabilities may also have auditory processing difficulties.

Often we feel pressured to send in a referral for (C)APD testing by the school and/or psychologist. How should we deal with this?

If through your testing you have determined a reason why the child is experiencing problems in the classroom or at home then you should deal with that difficulty and determine appropriate strategies. If through your testing you are still puzzled why they are having problems, then you should refer this child for (C)APD testing.
Do you recommend any books on this subject?

There is a technical two book set that was published in 2007 that provides insight in this disorder from several experts in the field. The title of these books is:

1. Handbook of (Central) Auditory Processing Disorder: Auditory Neuroscience and Diagnosis Volume I
2. Handbook of (Central) Auditory Processing Disorder: Comprehensive Intervention Volume II

Gail D. Chermak
Frank E. Musiek
Plural Publishing Inc.

You could check recent journals or search the world wide web.

Can you give an example of the difference between C(APD) and a language processing disorder?

If the question is "Tell me how a chair and a couch are alike?" the person with an auditory processing problem may hear it as “Tell me how a couch, van and chair are alike?” or “Tell me how a hair and a cow are alike?” The person with a language processing problem would hear the question “Tell me how a chair and a couch are alike but would not be able to answer this question.

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