

## **British Society of Audiology**

### **Auditory Processing Disorder (APD) Steering Committee**

# **Interim Position Statement on APD – March 2007**

*(This document will be updated as new evidence accrues)*

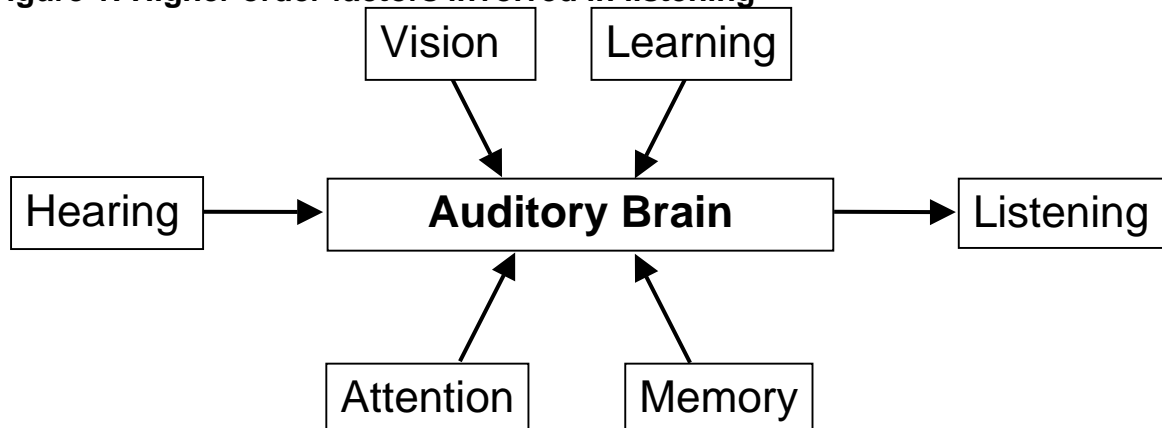
The ability to listen to sounds involves memory, learning, vision and attention, as well as hearing ( Figure 1). If any of these functions are impaired then hearing and listening may be compromised. The preferred term used to describe the resultant processing dysfunction is Auditory Processing Disorder (APD).

Historically, APD was known by a variety of names e.g. Obscure Auditory Dysfunction (OAD), King Kopetsky Syndrome, Central Auditory Processing Disorder (CAPD). There are many anecdotal clinical reports to support the existence of APD, but little scientific evidence on which to base either diagnosis or management. However, it is likely that APD will include a variety of different pathologies and abnormalities of auditory function.

### **UK Definition of APD**

APD results from impaired neural function and is characterized by poor recognition, discrimination, separation, grouping, localization, or ordering of *non-speech* sounds. It does not solely result from a deficit in general attention, language or other cognitive processes.

**Figure 1: Higher order factors involved in listening**



*N.B. For simplicity, we have limited the directional relationships*

### **APD in relation to other developmental conditions**

APD often co-exists with other sensory, cognitive, neurological or psychological difficulties/disorders, but we are not yet able to determine the precise nature of the relationship between them. APD may be causative or symptomatic or may result from a common underlying cause of an/other disorder/s. The difficulty in untangling these relationships adds to the difficulty of diagnosing APD.

While we believe that APD may generally impact on speech perception, the term APD should only be applied when there is a measurable problem with at least some aspect of processing of non-speech sounds. Speech and language tests may, however, be used during diagnosis to distinguish APD from speech and language problems.

## Aetiology

In most cases of APD, the cause is unknown. Causes may include demonstrable neurological disorder or genetic disorder, a history of persistent OME, neuromorphological anomalies (e.g. mis-shaped or misplaced neural cells), maturational delay/degeneration or a combination of these.

## Presenting problems

People with suspected APD report difficulties including one or more of the following

- Understanding when listening to speech
- Reading
- Remembering instructions
- Staying focussed while listening

## Testing

Given the current state of knowledge, the Steering Committee propose that,

i) Assessments should include:

- Detailed audiometry (including tympanometry, acoustic reflexes, OAEs and suppression and ABR) to check for any undiagnosed peripheral problem and/or auditory neuropathy/dyssynchrony
- APD tests, which should include
  - non-speech auditory processing along two or more dimensions (e.g. spectral discrimination, temporal resolution, binaural interaction)
  - speech perception tests (preferably with and without masking)

- Tests of language, cognition (e.g. verbal and non-verbal reasoning), and short term auditory memory
- ii) All assessments should be conducted by appropriately trained professionals to ensure appropriate interpretation of results.

## Intervention

Intervention should be tailored to the needs of the individual client where possible and may include one or more of the following:

- (i) Provision of appropriate verbal and written information<sup>i, ii</sup>. For some, knowing that they have a recognisable problem may be sufficient.
- (ii) Optimisation of the listening environment e.g.
- closer proximity to the sound source
  - improved room acoustics
  - instruction on good listening, and
  - listening devices such as FM systems or personal amplifiers
- (iii) Some, however, may need more substantial input. For them, it may be necessary to incorporate elements of points (i) and (ii) and consider the introduction of other intervention methods. These could include effective (preferably adaptive and evidence-based) auditory, speech and/or language training programmes. At present, there is no direct evidence that such training programmes are effective for APD. At least one, however, has been shown to be effective at improving phonological awareness in normally-developing

children, which is one of the building blocks of literacy skills. So they may have utility for the APD client population too. If it is considered appropriate to use an auditory training programme, our advice is to base decisions on the profile of the presenting problems, ease of use, evidence of validity and low price. We have no reason to prefer one programme over another.

(iv) In addition to the previous points, it may be helpful when working with children to:

- Conduct an observation of the child in the classroom
- Obtain a record of academic attainment of the child at school (i.e. SATs)
- Obtain assessment records from SLT and Educational Psychology
- Advise the parent to explain the potential problems to the class teacher. An extra parent information leaflet could be provided to give to the school<sup>i</sup>

Considerable research is taking place in the UK and internationally to help us understand better how to identify and treat APD. This statement is likely to be revised significantly within the next 12-36 months as further evidence becomes available.

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<sup>i</sup> Auditory Processing Disorder – Booklet for parents produced by MRC Institute of Hearing Research. Available from Deafness Research UK and [www.ihr.mrc.ac.uk](http://www.ihr.mrc.ac.uk)

<sup>ii</sup> Auditory Processing Disorder (APD) Previously known as Obscure Auditory Dysfunction (OAD) – Patient information booklet produced by MRC Institute of Hearing Research. Available from [www.ihr.mrc.ac.uk](http://www.ihr.mrc.ac.uk)