# THE LISTENER

APD SUPPORT UK NEWSLETTER

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# A PROFESSIONAL VIEW

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Real life listening environments are characterised by a mix of complex sounds that change over time. Sound perception and understanding, i.e., "listening" is required for us to communicate and to survive in these environments. Listening is an active cognitive process. It starts with sound transduction/amplification and encoding of frequency, timing and amplitude features within the ear, binaural integration (important for sound localisation and listening in noise) and early groupings of sound in the brainstem and "auditory cognitive" processes of auditory object formation (into e.g., voices and speech streams) by auditory scene analysis, with the matching of auditory objects to stored sound templates in a context/relevancy dependent manner (i.e., depending on the task), in order to achieve sound signal recognition and formulate an appropriate behavioural response. The latter part of this process is heavily dependent on language and cognitive processes.

Auditory Processing Disorder (APD) refers to the clinical presentation of listening difficulties in children and adults who have normal pure-tone thresholds but abnormal scores in complex psychoacoustic tests, that do not arise solely or predominantly due to higher-order language or cognitive factors. It is classified under H93.24 in the International Classification of Disorders (10th Edition) manual (ICD-10) of the World Health Organisation. Subtypes include developmental APD, in children with a history of developmental conditions with or without no other known risk factors (such as language, reading, attention or autism disorders) or a related family history, but with symptoms that may persist into adulthood. Non-speech sound processing shows strong heritability. Acquired APD may present after brain injury (trauma, stroke, other) or with ageing. Secondary APD may be present in individuals with a history of hearing impairment. Additionally, impaired perception of sound features corresponding to pathology in central auditory structures can be a prominent and differential feature of different subtypes of dementia. APD may also be an aspect of schizophrenia.

APD is diagnosed based on symptoms, poor performance on auditory processing tests, and consideration of other factors that may impact performance. There are no uniform diagnostic criteria, however, more recent consensuses and guidelines by several professional associations and societies appear to be aligned.

## A PROFESSIONAL VIEW (CONTINUED)

Individuals with APD find it difficult to discriminate sounds, and to listen and understand when there is even minimal noise, or when the sound is distorted. They will have speech discrimination difficulties because speech is a fast-changing sound that requires discrimination of individual sounds, sequencing of sounds, good use of spatial cues to separate different speakers as well as cognitive (attention/memory etc) and other processing. They may have difficulties remembering what they hear (or read) and attending to speech over a long time. Individuals with APD require more time to process what they hear, and also more time to process what they read (in that when we read, we use the verbal rehearsal system).

APD has a significant adverse impact on the affected individual's listening and communication, in both children and adults. In the UK, these children are classified as having special educational needs (SEN). Children with APD and their parents report greater emotional difficulties, poor health, emotional and social skills and both children and adults with APD may employ different coping strategies to address these to those of normal-hearing individuals such as emotional regulation rather than problem-solving. APD in childhood may also affect the "sense of self" into early adulthood.

Management of APD may include listening exercises (i.e., auditory training) for children as well as adults, metacognitive strategies, and *remote microphone hearing aids (RMHAs). RMHAs may improve speech understanding by 53%. There is "moderate support" that RMHA systems use in the classroom improve children's speech perception and listening skills in that setting, with mixed evidence that they improve academic performance. There are similar reports of improved speech in noise perception with RMHAs in adults with neurological type APD.

Awareness about APD remains low. An online APD family survey found that the majority of affected individuals and their families will be faced with some difficulties in getting a referral for diagnosis (54%) or getting support for APD (61%), and the majority of respondents reported poor recognition and awareness of APD (63%) in Education, Health or Work settings.

EDITOR'S NOTE:
*Remote microphone hearing aids (RMHAs) are also known as assistive listening devices (ALDs) and include frequency modulated/FM systems.

## TESTING

If a child or adult is suspected of APD, please seek testing at one of the recommended centres on the "APD testing centres" document on our "Diagnosis" page. They use the generally accepted method referred to in this article. (Basic screening does not meet that standard). https://apdsupportuk.yolasite.com/diagnosis.php

Information on APD for professionals can be found here: https://apdsupportuk.yolasite.com/professionals.php