

# NEW ZEALAND GUIDELINES ON AUDITORY PROCESSING DISORDER 2019: GENERAL SUMMARY

## Definition and prevalence

Auditory processing disorder (APD) is a generic term for hearing disorders that result from atypical processing of auditory information in the brain. Through its effects on communication, APD can affect learning and academic achievement, psychosocial development, participation, and career opportunities. The overall prevalence in children in New Zealand is estimated at 6.2%, with higher rates in some populations. APD prevalence is high in elderly persons.

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## Symptoms

Some APD symptoms are similar to symptoms of other types of hearing disorders, but APD differs in that it is not detected by standard hearing tests. APD should be suspected when there are reports of poor hearing and auditory comprehension in some circumstances despite normal results on standard hearing tests. Some common symptoms are listed below:

- difficulty following spoken directions unless they are brief and simple
- difficulty attending to and remembering spoken information
- slowness in processing spoken information
- difficulty understanding in the presence of other sounds
- being overwhelmed by complex or “busy” auditory environments e.g., classrooms, shopping malls
- undue sensitivity to loud sounds or noise
- poor listening skills
- difficulty with reading or spelling
- preference for loud television volume
- insensitivity to tone of voice or other nuances of speech.

## Conditions that commonly occur with APD

APD frequently occurs with developmental language disorder and reading disorder/dyslexia. APD may be an underlying cause in these conditions. APD is common in children with autism spectrum disorder and is sometimes seen as a co-existing disorder with attention deficit (hyperactivity) disorder. Some conditions that are frequently associated with APD are listed below.

- brain injury
- neurological disorders affecting the brain
- history of frequent or persistent middle ear infections or glue ear
- dyslexia
- language disorder or delay
- autism spectrum disorder.

**Assessment for APD should be considered when there are symptoms of hearing or listening problems not consistent with the results of basic hearing assessment, or when there are frequently associated conditions.**

## Diagnosis

APD is diagnosed by audiologists using specialised audiological tests as recommended in the Guidelines (New Zealand Guidelines on Auditory Processing Disorder, 2019). In children, evaluations of cognitive, learning, and language abilities by relevant professionals are also considered as part of an APD assessment. Teacher evaluation of hearing ability in the classroom also provides invaluable input in the assessment of children.

Early detection of auditory processing difficulties and subsequent early intervention are recommended. The Guidelines encourage APD testing below the traditional age of seven years, using tests that have been developed for younger children.

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## Management

Management of APD includes treatment of the APD; treatment of accompanying or consequential effects such as language disorder, phonological and reading problems, and coping difficulties; further referral if required; and the provision of information and support. With children, speech-language therapists (SLTs), teachers, learning support personnel, psychologists, and other professionals may need to be involved in treatment along with audiologists.

## Treatment

Due to the ability of the brain to develop new skills (neuroplasticity), APD is very treatable, though treatment progress may be slowed or limited by the presence of some associated conditions. The three main recommended approaches to treatment of APD in children are **amplification with remote microphone hearing aid systems (RMHAs), auditory training** with selected scientifically validated programmes, and **language therapy** including phonological processing therapy. The main treatments for adults are amplification with conventional hearing aids (accessory remote microphones optional) and auditory training.

Audiologists carry out most auditory training and prescribe and fit RMHA systems or alternative hearing aids as required. RMHA systems, where the speaker (e.g. parent, teacher, coach, friend) wears a small transmitting microphone and the child wears small wireless receiver hearing aids, dramatically improve ability to hear in difficult listening situations including classroom environments and multiple life situations outside school. Improvements are seen in attention, participation, academic achievement, phonological awareness, reading and social adjustment. Use of RMHAs has been shown to reduce classroom stress in children with autism spectrum disorder. Also, over time if RMHAs are worn regularly, there are neuroplastic changes in the auditory parts of the brain, leading to permanent improvement in hearing abilities. For children, assistive hearing technology is not usually required long term. Two to three years of use is common. RMHA fittings to both ears are essential to prevent causing amblyaudia ("lazy ear") resulting from lesser stimulation to one ear. Annual review is recommended. Teacher engagement and support from Advisors on Deaf Children or other education personnel trained in APD are critical factors in achieving success with the use of remote microphone hearing technology in schools.

Auditory training may be used to treat specific auditory deficits such as amblyaudia and difficulty hearing in noise. Phonological processing therapy should be provided to children who have difficulties in this

area. SLTs, reading and learning disability specialists, and teachers frequently help children needing extra assistance with phonics skills and phonological awareness.

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Alternative purported APD treatments offered by providers without audiological qualifications and involving listening to processed music lack scientific basis and are not endorsed by professional organisations. Conversely, formal musical instrument (including voice) training is beneficial for auditory processing skills.

*Summarised from:*

Keith, W. J., Purdy, S. C., Baily, M. R., & Kay, F. M. (2019). *New Zealand Guidelines on Auditory Processing Disorder*. New Zealand Audiological Society. <https://www.audiology.org.nz/>

The New Zealand Guidelines on Auditory Processing Disorder are located on the New Zealand Audiological Society website under Menu/For the Public/Other Hearing Conditions/Auditory Processing Disorder or can be downloaded from the following link. [NZ APD GUIDELINES 2019](#)