



AUDITORY PROCESSING DISORDER (APD)

Auditory Processing Disorder is a relatively recently recognised condition (first noted in the USA in the mid 1960's) that we do not understand a lot about. This factsheet has been designed to answer as many of your questions as possible, as honestly as we can.

WHAT IS AUDITORY PROCESSING DISORDER?

Most of us hear well and so don't give much thought to how we hear. Hearing starts with a very complex set of actions within the outer, middle and inner ear. These actions send the sounds to our brain, and our brain interprets them so we can understand. For example, it tells us the whistling we hear is a bird singing. This is what we call LISTENING. The medical term for it is AUDITORY PROCESSING. When a child's ears are working well, but the child cannot understand the sounds they hear, the child may have an 'auditory processing disorder' (abbreviated to 'APD').

IS APD A COMMON PROBLEM IN CHILDREN?

We do not yet have any firm evidence on how many children have APD. It is possible that as many as 10% of children may have some level of APD.

WHAT ARE SOME OF THE SYMPTOMS OF APD?

Children with APD can have difficulties:

- Understanding when listening
- Expressing themselves clearly using speech
- Reading
- Remembering instructions
- Understanding spoken messages
- Staying focussed

Some children with APD behave as if they cannot hear. Hearing, and listening, in noisy places can be especially difficult for many children with APD. Although some parents realise their child has difficulties with understanding from an early age, APD often becomes more obvious when children start school. Teachers are sometimes the first to spot the difficulty, especially if the children have difficulties learning to read. Concern arises because children with APD often have normal intelligence, and so would be expected to pick up reading at the usual age.

Below are some comments made by children with APD:

- I can't understand what people are saying when it's noisy
- I hear, but I don't understand
- I can't remember what I'm told – especially if it's a lot of instructions
- I have a terrible time trying to learn French
- I can't seem to concentrate unless it's very quiet in the room
- If someone talks very quickly, I misunderstand what they say

Below are some comments from parents and teachers of children with APD:

- My child finds it hard to concentrate
- The teacher feels my child acts like he can't hear, but he's always passed the health visitor and school hearing screens
- One of my students is performing poorly in reading, but I know she is bright and I don't understand why this is so difficult for her

WHAT CAUSES APD?

We still do not understand a lot about APD. It is possible that APD can run in families. Parents of children with APD often report they have difficulties listening and hearing which may have started when they were young. Some children with APD may have tiny differences in the way that brain cells (called 'neurons') are joined together, or send messages to each other. This may make it hard for sounds to be passed on to the areas of the brain which help the child understand language. It is possible such brain cell differences may cause APD.

APD may also be caused by long-term middle ear disease ('glue ear') or by limited access to communication. In rare cases, injuries to the head may cause APD.

IS APD RELATED TO OTHER DIFFICULTIES?

It is likely that many (but not all) children who have language-learning difficulties may also have APD. Professionals use different names to describe these difficulties. The following points aim to help clarify the differences:

- APD means the child finds it difficult to understand when LISTENING
- Dyslexia means the child has difficulties with READING and or SPELLING
- Attention Deficit Disorder (ADD) and/or Attention Deficit Hyperactivity Disorder (ADHD) means the child finds it difficult to CONCENTRATE or ATTEND
- Speech and Language disorder means the child has difficulties developing and or understanding SPEECH and LANGUAGE

It is possible that difficulties with concentration may cause both APD and dyslexia or that these conditions may cause difficulties with concentration. We do not know, but scientists are conducting research in this area, and so hopefully we will be able to say in the not too distant future.

HOW DO YOU TEST FOR APD?

When having a hearing test, children are usually asked to press a button or put a toy in a boat whenever they hear a 'pip' sound. This is usually done in a very quiet room and is a check that their ears are working well. Children suspected of having APD will have at least one of these tests and, if the test shows that their ears are working well, they will also have a series of further tests for APD. Different professionals use different ways of checking for APD. The following are examples of the sort of methods that may be used:

Screening Questionnaire

This is a quick check that can be given to just one child or to groups of children. About 30 questions are asked, either on a computer screen or in a booklet. The questions ask about the children's experience of everyday sounds e.g: "If a friend or family member shouts your name, do you know who is calling without looking to see?" All answers are scored and we use the overall score to help us decide if a child needs further testing.

APD listening Test

This test is done in a hearing clinic. The listening test is introduced as a computer game. It is a bit like an odd-man-out game, and so is fun to do. Most children enjoy playing this game. The child sits in a very quiet room (called a sound booth) and listens to sounds played through headphones. The headphones are specially made for children so they are not heavy and for very young children are designed to look interesting. The sounds are not loud or uncomfortable to listen to, but they may vary in:

- Pitch (high or low)
- Loudness (quite loud or very soft)
- Type of sound

The computer checks how the children respond to these sounds, and then produces an 'auditory processing ability' score. Each child's score is then compared with auditory processing scores from other children of the same age. This helps us to know if the child is likely to have APD.

IS THERE A CURE FOR APD?

Unfortunately there are no drugs or procedures which 'cure' this condition. Quite often parents report feeling a sense of relief for knowing why their children are struggling at school. Equally, the children may also report a similar sense of relief. We are hopeful that useful treatments will be available in the future.

WHAT CAN BE DONE TO HELP IF MY CHILD HAS APD?

Although there is no 'cure' for APD, there are things that the hearing clinic and the child's school and family can do to help. We have listed some of them here.

Clinic/Hearing Services

- Hearing training programmes and strategies (exercises to help the child understand better when listening)
- Parental support programmes

School/Local Education Authority

- Child could sit near teacher's desk to aid lip reading and other cues
- Teacher could be asked to check child is looking and listening when instructions are given out, especially if teacher walks around when talking
- Teacher or classroom assistant could be asked to check child has heard and understood the instructions
- (For older children only) Teacher could be asked to provide written information which might be used to consolidate verbal instructions
- Classroom noise could be reduced (more carpeting and soft furnishings, rubber feet on table and chair legs etc)
- Listening devices could be provided to make speech clearer in noise –for example, a soundfield system in the main classroom or personal fm systems

Home

- Family could encourage the child to do any listening learning exercises as prescribed
- Family could check if the child is looking and listening when necessary
- Background noise in the home (such as TV or radio) could be reduced when trying to communicate.

WHAT RESEARCH IS BEING DONE IN THE UK?

Research is starting in many countries, including here in the UK. The results of these studies may help us to understand the disorder and provide better help for children identified with APD.

Work is already being carried out to try to establish:

- a general method to screen for APD
- an appropriate set of tests to diagnose APD
- appropriate training for children identified with APD
- appropriate assistance for the children

When we have developed these, all clinics will be able to use them.

Deafness Research UK is currently funding a research project looking at possible links between APD and dyslexia, and we have also recently awarded a grant for a research project aiming to develop more accurate diagnostic tests.

WHERE CAN I GET MORE INFORMATION ABOUT APD?

Contact the Deafness Research UK Information Service for further information about research into APD.

If any of your questions concerning APD have not been answered by reading this factsheet, contact the Deafness Research UK Information Service for further assistance. Our Information team will either answer your enquiry directly or refer it to one of our scientific or medical advisers.

Open: 9.00 a.m. to 5.00 p.m., Monday to Friday (a message can be left at other times).

Freephone: 0808 808 2222

Textphone: 020 7915 1412

E-mail: info@deafnessresearch.org.uk

or click the 'ask question' option from our website homepage:
www.deafnessresearch.org.uk

Websites

<http://www.apduk.org> (aimed at UK public)

<http://www.ihr.mrc.ac.uk> (aimed at research community)

<http://www.nidcd.nih.gov/health/voice/auditory.asp> (aimed at American public)

<http://www.asha.org/public/hearing/disorders/understand-apd-child.htm> (aimed at both research and public in America)

<http://www.ncapd.org> (aimed at parents and children with APD worldwide, and includes involvement from professionals working in APD worldwide)

Books

Several appropriate books are suggested on the APDUK website. Information on where to purchase them is also provided. APDUK also produces a Newsletter for its members.

This information is based on a leaflet produced by the MRC Institute of Hearing Research in collaboration with the British Society of Audiology APD Special Interest Group, with advice from APDUK and NDCS.

Deafness Research UK is the only national medical research charity dedicated to helping people with deafness, tinnitus or other hearing problems.

Scientists are now predicting that within the next ten to fifteen years there could be a cure for some forms of deafness and much more effective treatments for tinnitus. Deafness Research UK is at the forefront of this work.

You can support us by making a donation or joining the Deafness Research UK League of Friends. For more information call us on 0207833 1733 or write to:

Deafness Research UK, 330-332 Gray's Inn Rd, London WC1X8EE
Charity no. 326915

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