



**THE CENTRE FOR HEALTHY LIVING  
CAN DO PROGRAM**

# The APAAL Program

When listening comes alive

**The benefits of the Auditory Processing, Auditory Attention and receptive Language (APAAL) Program.**

The Can Do program involves auditory processing training. It is designed to help children who have had difficulties with auditory processing tasks which can be involved in a wide range of conditions ranging from learning difficulties to ASD and ADHD. Auditory processing difficulties also affect communication and literacy (reading, writing, speaking and talking).



.In the condition called dyslexia, which literally means 'word blindness', auditory processing issues are involved in at least 6% of cases, so they are very common.

## What does the APAAL Program involve?

### The sonotopic map

A typical child with auditory processing difficulties could have issues connected with speaking, reading and writing and listening as well as difficulty paying attention and making social connections. Sometimes these issues are developmental, so that as the child grows up, they can get over them. However, 30% of children with these problems have auditory processing issues generally caused by a problem with the initial hearing and processing of sound. Research indicates that the hearing system comes online at five weeks after conception. The fetus hears and encodes a range of sounds from low frequency, for example, sounds associated with the mother's body functioning, to high frequency, for example, the mother's speaking voice and random environmental noises. The brain develops as it is exposed to these sounds. This is a two way street: the sound causes the brain to respond, and the brain develops to be more capable of recognizing sounds. This process is something which continues right through the early developmental period when a complete map of all the sounds heard is encoded into the child's brain. This is called a sonotopic map.

The letters of the alphabet, A to Z, cover the full range of normal human hearing. Particular frequencies generally contain certain letters. Because the brain develops over a period of time, this sonotopic map also develops over a period of time. If something happens during this developmental period to interfere with brain functioning or hearing, then that particular frequency may not be encoded in the sonotopic map.



### Gaps in the sonotopic map

Gaps in the sonotopic map result in the loss of quite a few letters from the child's repertoire of sounds. When a child with this problem goes to school, he or she will have difficulty recognizing and responding to the sounds the teacher is teaching.

They make it very difficult for the child to learn or even recognize the missing sounds. It would be like Australian adults trying to learn a language like Russian. They would probably find it difficult because Australians don't have Russian sounds encoded in their sonotopic map.



Children with auditory processing difficulties don't have all the sounds of the English language in their maps. Therefore, when they get to school, and the teacher teaches "A says ay" they won't get that message if that part of their sonotopic map is compromised.

## What does the APAAL Program involve?

### Auditory training

Until an auditory training program like APAAL came along not much could be done to address these problems, except to identify them, and then to manage the environment, and help the person develop compensating strategies. Approaches teachers used were to speak in simple sentences making sure students are looking at them; getting them to repeat back what was said and using other strengths to compensate for their difficulties, their nonverbal strengths.

The auditory training program, by contrast, is designed to remediate the early development experiences, by taking the child through the full range of human sounds in a sequenced way similar to what occurred when the sonotopic map was first developing. The brain is exposed to sounds of all the frequencies from low to high and back again. This occurs in a controlled context where an operator/ technician supervises the process.

The child, wearing headphones, is exposed to sounds in the form of music, and the mother's voice (or as close to the mother's voice as can be replicated). The sounds the child is exposed to can be modified in all kinds of ways depending on the particular issues that have been identified for each child. Psychologists identify these issues using an instrument called the Scan 3 and by taking a comprehensive developmental history including school records and other relevant testing results. The program is developed in relation to the individual child's specific needs.



### Problems children experience

In the condition called dyslexia, which literally means 'word blindness', auditory processing issues are involved in at least 61% of cases, so they are very common. Other problems children may encounter at school such as dyscalculia (difficulties with numbers) and dysgraphia (difficulties with writing) are also impacted by auditory processing issues. These difficulties can therefore affect children's academic performance. Their struggles in these areas can impact on their mental health as children with these conditions frequently see themselves as "dumb". However, they are not unintelligent; they have a specific learning difficulty.



When the underlying problems are not recognized and attended to, it can be so significant that as they grow older, these children can develop behavior problems and eventually disengage from education. This can have a significant impact on their life choices. In short, it is a very serious problem.

## How does Auditory Training fit in with the entire CAN DO Program ?

The Centre for Healthy Living is offering this program as part of the broader Can Do program. There are often co-morbid or associated issues, for example, these children's brains may require extra nutritional and metabolic support. This is addressed through medicinal herbs and supplements which helps to ensure the brain is in the best physiological condition to take maximum advantage of the intensive program.

Another implication of poor auditory processing skills is poor social relationships. To have a good social relationship one needs to have good speaking and listening skills based on good auditory processing. To help children who may have missed out on developing social skills, a program called Secret Agent's Society is offered after the auditory training. Once children have improved auditory processing skills, they are then in a position to more effectively learn how to interact socially. They do need to be taught these social skills and should now be in a better position to learn. The SAS Program also has a parenting component to help the parents support their children through the program.



### Training schedule

A typical program would be 10 or 15 days of two hours a day. During these times the child can play games and be engaged in other learning activities. Part of the program involves the child listening to the mother's voice reading appropriate texts. This sound is filtered to replicate what the child would have heard when they were a fetus in the mother's womb. After this first intensive phase, there is a gap where the brain is given a chance to accommodate to this new information. Then, if necessary, this intensive program can be repeated depending on the severity of the problem.



The Can Do program is a holistic program unique to the Centre for Healthy Living. The Auditory training section is based on the earlier work of one Dr. Alfred Tomatis. His work was taken up by George and Martha Mack with the APAAL program which has had 20 years of experience and success. The Centre has added the other components mentioned left to make it a cutting edge program for children with a wide range of problems.