

“Try to imagine yourself as a child who can’t filter out extraneous noise,” — Pascal Maher

Helping them hear

Does your child have severe learning difficulties? Is he dyslexic, autistic or does he suffer from attention deficit disorder (ADD)? If so, he may benefit from the Tomatis Method — a programme that uses classical music and the sound of the mother’s voice to stimulate normal development. Margaret Hawkins speaks with Pascal Maher, the psychologist who brought this listening therapy to Ireland

Most children reach their developmental milestones without difficulty. They crawl when they should, they walk when they should, they speak when they should, they read when they are supposed to. They begin to socialise happily with others when they should too, and go on to lead happy and fulfilling lives.

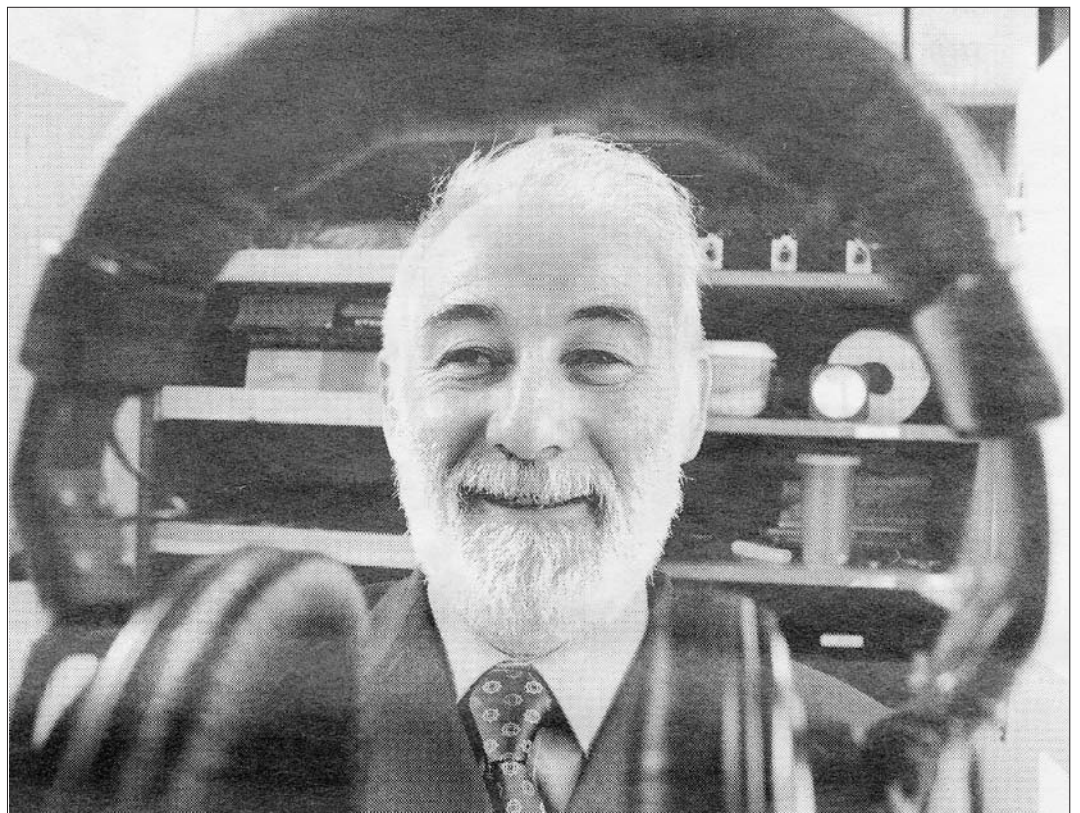
But what if your child did none of these things on developmental cue, so to speak? What if he can’t speak properly? What if he can’t follow simple instructions? What if he can’t concentrate on tasks or play for more than a few minutes at a time? What if he seems wrapped up in his own agitated world?

According to the late French ear, nose and throat (ENT) consultant, Dr Alfred Tomatis, such developmental disorders relate to a problem in the child’s listening function. Such children can hear, but they can’t listen properly due to faults in their auditory development during pregnancy and early development.

The ear has fully developed as an organ at four and a half months gestation. In some children, however, muscles in the ear do not work properly, leading to speech and learning challenges down the line.

Sound selection

“Tomatis recognised that listening begins in the womb, and that it is the ability to tune into



Pascal Maher with a set of headphones that emit pulsating beats to ‘exercise’ the auditory system.

selected sounds,” said Pascal Maher, psychologist and former guidance counsellor who runs the Cluas Centre, in Tallaght, Dublin 24.

“We relegate what we choose not to hear to the background, so that we can concentrate on the task at hand. It is a very important ability. Children with developmental disorders like autism, Asperger’s syndrome, ADD, dyslexia and dyspraxia cannot do this, so the ear needs to be re-trained,” he said.

Imagine being unable to listen properly

“Try to imagine yourself as a child who can’t filter out extraneous noise. Every noise would have the same sound value for you. You would try to pay attention to a conversation or a les-

son, but other noises would continually distract you, making your unable to concentrate on one thing for any length of time,” said Pascal Maher.

Teachers cross

“Parents and teachers might be cross because you weren’t following instructions or paying attention. Over time, this inability to filter out sounds would lead to your doing one of two things in life: either tuning out or reacting to every little thing. You would become withdrawn or you would continually jump from one topic or activity to another — in short, you would suffer from attention deficit,” said Pascal Maher.

Dr Tomatis’s solution to this problem was to develop an Electronic Ear to re-train children’s listening abilities.

Electronic Ear

This machine modifies sound. It can remove either low- or high-frequency sounds on request. Connected to a set of headphones, it can filter music or speech to make it replicate sounds heard in the womb.

The Tomatis Method, therefore, involves a programme, that over a period of months, stimulates the ear to perform normally by re-introducing sounds that should have been heard in the womb.

How we hear

"The way we hear is extremely important," said Pascal. "If you think about it, you'll know that we hear with more than just our ears. Have you ever heard a gunshot or a loud screech and jumped?"

"These sounds are picked up by our bones, leading to a reflex reaction. They are transmitted directly to the inner ear, without any filter to dampen their intensity, whereas sounds that we hear through air conduction are dampened before they get to us," he said.

People with some types of ADD or ADHD hear too much through bone conduction. Sounds go directly to their inner ear and they cannot filter out extraneous background noise.

"The Tomatis Method trains the ears to become the main entrance for sounds and makes bone conduction the secondary entrance, as it should be. Many children who've had ear infections or glue ear have damaged hammer and stirrup muscles in their ears. This means that sounds aren't filtered out, and the ear isn't protected from loud sounds. The Tomatis Method gives these muscles a 'workout', enabling the child to then listen properly," said Pascal Maher.

How does it work?

After an initial assessment, where the child's auditory processing ability is tested, a tailor-made programme is developed. It is a three-stage, circa 60-hour, programme that takes place over several months. The initial stage is 15 days of two-hour sessions. Children play in a therapy room at the clinic while listening to a CD connected to the Electronic Ear.

Calming music, like Mozart compositions or Gregorian chants, is played initially. "Mozart is the preferred composer, because his music was found to be the most perfect. It contains a lot of high frequencies, which is very important for energising the person," Pascal said.

"We begin by taking out the low frequencies and continue until all the frequencies, up to 9,000Hz, have been removed. The sound gets 'tinner' as it goes up, but it is a gradual process, as the

person is trained to focus on the sounds over time," said Pascal Maher.

The sound of the mother's voice is also introduced and eventually filtered to only leave the high-frequency 'ch-ch' sounds that a baby hears in the womb. Using sound and the mother's voice, as it would have been heard in the womb, the earliest stages of development are retraced where language, learning and movement began.

The child undergoing the programme does not listen to such filtered sounds continually, however. "We alternate it with unfiltered music, as the child would not be able to tolerate filtered sound continually. All the time this is going on, the child is busy playing or painting and becomes unconscious of the headphones," he said.

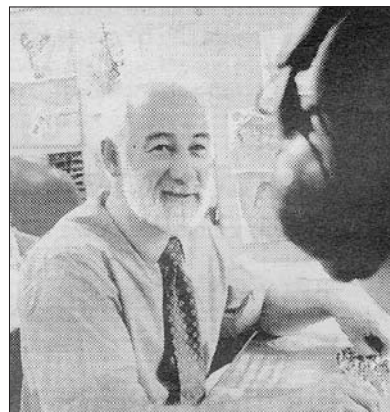
Microphone work is also used to enable the child to hear himself. "Sometimes children on the autistic spectrum have difficulty listening to their own voices," said Pascal Maher, "so it's a good learning exercise — a feedback loop that helps in the listening training."

Pascal Maher became interested in severe learning difficulties through his 20 years experience as a guidance counsellor. He is also a trained neuro-developmental therapist. This therapy works on re-training reflexes and improving specific learning disabilities.

"I was seeing many people with severe difficulties in my work. However, after hearing about the Tomatis Method, I decided to study it. Internationally, it has been shown to improve attention spans, communication ability, memory and quality of speech.

"I see children who after treatment are more connected. They begin to come out of their own world and relate much better to others," he said.

Electronic Ear



Pascal Maher uses the Electronic Ear to 're-train' a person to listen.

How does it work?

The Electronic Ear includes an amplifier with two audio channels. One channel is set to amplify the high frequency of incoming sound while simultaneously decreasing the low-frequency sound.

When the sound reaches a certain volume, it activates a 'gate' that redirects sound to the second audio channel. This channel decreases the low-frequency content while increasing the high-frequency content.

As a result of this rapid alternation or 'flip flip' of sound, from one channel to the other, the sound is perceived to be pulsating. These pulsating beats 'exercise' the auditory system, re-training how a person listens.

Toronto research

In a study of 400 children in Toronto, 95% of parents said that the programme had helped their children. In a follow-up assessment six months later, 83% of children (according to parents) had maintained the improvements; 145 said some of the gains had been maintained; only 3% maintained none of the improvements.

Cost

The Tomatis Method is not cheap. An initial assessment of your child will cost €300. The full programme, tailored to the needs of the child, may cost in the region of €4,000. Length of treatment varies from child to child.

Alfred Tomatis

Dr Alfred Tomatis, a French ear, nose and throat consultant, who died in 2001, spend most of his life studying the ear and communication.

He was the son of an opera singer, and he became interested in understanding why many opera singers suffered a reduction in their vocal quality at a relatively young age.

In the 1940s, his research led him to conclude that vocal and musical abilities of humans are linked directly to the ability to hear. In the 1950s, he developed the 'Electronic Ear' to improve both voice production and musical skill. He further developed this sound stimulation method to improve language.

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